

Growing What You Eat: Developing Community Gardens and Improving Food Security

A thesis presented to  
the faculty of  
the College of Arts and Sciences of Ohio University

In partial fulfillment  
of the requirements for the degree  
Master of Arts

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June 2010

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Growing What You Eat: Developing Community Gardens and Improving Food Security

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## ABSTRACT

CORRIGAN, MICHELLE P., M.A., June 2010, Geography

Growing What You Eat: Developing Community Gardens and Improving Food Security

(131 pp.)

Director of Thesis: Geoffrey L. Buckley

Food insecurity and awareness are growing concerns in the United States. In addition to studying issues of supply and distribution, scholars and activists working in the field have turned their attention to food-related health problems such as obesity and diabetes. This has caused many to explore the extent to which Americans are engaged and involved in food systems. One way people are engaging with food systems is through community food security approaches such as community gardening. The popularity of community gardening and the localization of food production are evident across the country in cities, small towns, and rural areas eager to narrow the gap between production and consumption. In-depth interviews and field observations from Baltimore, Maryland and Athens, Ohio were used to examine the challenges of community gardening and determine the involvement people have within the food system from their experience with community gardening. It is evident that community gardens contribute to engagement and involvement within food systems; however additional assistance such as education, policy, and funding is needed to increase food security.

Approved: \_\_\_\_\_

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## ACKNOWLEDGMENTS

I would first like to thank Dr. Buckley for inspiring me, encouraging me, and providing valuable feedback throughout this process. In addition, thanks go to Dr. Jokisch and Dr. Smucker for their additional commentary and support. I would also like to thank the US Department of Agriculture Forest Service (06JV11242300039) for funding my research in Baltimore and the Baltimore Ecosystem Study for allowing me to learn more about the functions of the city. Special thanks go to the Parks and People Foundation in Baltimore and Community Food Initiatives in Athens for providing insight into your organizations. I must individually thank Community Food Initiatives and Liz Shaw for providing me the opportunity to work for them and gain hands-on gardening experience. Mr. Lewis Sharpe of the Duncan Street Miracle Garden also deserves dedication for providing new light on community gardening and creating a beautiful and bountiful garden in Baltimore. I would like to thank my fellow 2010 classmates, especially Erin Pierce for assisting and accompanying me in Baltimore and for her overall support and Mike Boruta for his distinguished cartographic skills. Lastly, I would like to thank my family and friends, particularly Andrew Arthur Oestrike and Allison Geiger for their constant encouragement.

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## CHAPTER 1: INTRODUCTION

Food insecurity is a growing concern in the United States, where 49.1 million people are unable to access enough nutritious food for an “active and healthy life at all times,” and are therefore considered food insecure (USDA, 2009). Obesity is also an increasing problem in the United States, where the Centers for Disease Control and Prevention estimate 34% of people over 20 years of age are obese (CDC, 2007). Food insecurity in the “Global South” is typically associated with hunger resulting from protein energy malnutrition and micronutrient malnutrition (Derose and Millman, 1998). Conversely, food insecurity in the “Global North” is usually defined by obesity. The United States produces enough food for all residents but almost 15% are unable to access quality food due to financial or other resource limitations.

Paradoxically, food insecurity and obesity occur among the same populations and thus their relationship has important implications for policymakers (Drewnowski and Specter, 2004). Community food security (CFS) is emerging as a widely accepted strategy for addressing food insecurity (Lyson, 2004). CFS attempts to localize food production to ensure that all community members obtain enough nutritious food through safe and culturally acceptable means, while also incorporating environmentally sustainable techniques in an economically and socially just manner (Hamm and Bellows, 2003). A need for CFS exists in environments where obtaining healthy and affordable food sometimes proves difficult, especially for low-income and minority populations who often lack access to automobile and public transportation (Block et al., 2004; Bullard, 2004; Kwate, 2008; Morland et al., 2002a). Improving access to quality food is important

because it contributes to a healthy diet, which can prevent obeseogenic environments (Drewnowski and Specter, 2004).

The goal of CFS is to provide communities with food security while promoting self-reliance and utilizing local agriculture (Hamm and Bellows, 2003). CFS offers a viable option in places with few healthy or affordable food options. One suggested method of integrating CFS is through the use of community gardens (Lyson, 2004).

While other studies focus on the public health implications of community gardens and the benefits of gardens from a CFS perspective, little information is available regarding the challenges encountered during the initial stages of community garden development (Brown and Jameton, 2000; Gottlieb and Fisher, 1996; Lyson, 2004; Wakefield et al., 2007). Similarly, few studies have evaluated the effectiveness of community gardens in terms of engaging people with food systems. Understanding the challenges involved with community gardening provides communities and organizations an opportunity to be successful during garden development. Successful community gardens can contribute to increased involvement with the food system.

The purpose of this research is to elucidate the challenges of community gardening and to determine the extent to which community gardens encourage involvement with food systems. In addition, this research will evaluate the viability of improving food security in multiple locations through a CFS approach. In order for communities to promote food security and healthy environments, CFS approaches, such as community gardening, need to be better understood. This research will answer the following questions:

- 1.) How does engagement with community gardens make people more aware of issues of food security as well as their overall involvement with the food system?
- 2.) Is food security influenced by the local food environment surrounding the selected community gardens in Baltimore, Maryland and Athens, Ohio?
- 3.) What challenges do gardeners and organizations face during community garden development?

Baltimore, Maryland and Athens, Ohio have been selected as study sites. The research in Baltimore will contribute to a larger project known as the Long-term Ecological Research – Baltimore Ecosystem Study. The goal of this effort is to gain a better understanding of how cities in the United States function as ecosystems. Athens, a small-town in Southeast Ohio, has a well-established community garden and several more recently developed community gardens. A secondary goal of this study is to determine whether community gardens in small town locations encounter problems similar to those in urban communities, such as soil quality issues, access to water, and difficulty securing land. It has been shown that small towns experience similar public health problems including obesity and diabetes.

Depending on where you are in Baltimore will greatly alter your opinion of the city because what you see is so different. Once a blue-collar manufacturing city, Baltimore's economy has undergone a painful transition in recent years. This transformation to a service economy led to high unemployment and to disinvestment in many neighborhoods (Olson, 1980). At the same time, the population of Baltimore City

quickly fell while suburban areas experienced an increase in population. Prior to 1900, black and white populations were equally distributed throughout many parts of the city; however, segregation acts instituted as early as 1910 separated neighborhoods into “white” and “colored” (Boone et al., 2009). Similar to many other large cities, after 1950, white populations began leaving the city of Baltimore while African American populations continued to increase (Boone et al., 2009).

Visiting the city’s Inner Harbor or traveling south to Federal Hill or east to Fells Point will create positive opinions of the city, where restaurants, pubs, parks, shops, and museums dot the cobblestone streets along the waterfront. However, most will advise against traveling west of the stadiums or north of Orleans Street. When driving the streets of these neighborhoods, lined with boarded up and vacant homes, one might become concerned with the city’s future. This is the type of area in which the Duncan Street Miracle Garden (DSMG) is located. An average tourist would almost never stumble upon the garden and it would even be difficult for a permanent resident living in Federal Hill and working downtown to know it exists.

The DSMG is located on North Avenue between Chester Street and Collington Avenue in the Broadway East neighborhood of historic East Baltimore and takes up a city block (Figure 1). This primarily African American (98%) neighborhood experiences high rates of poverty and almost 50% of residents rely on public transportation (City Data, 2007). The existence of a food desert indicates uneven access to quality food and therefore creates an issue of injustice. The DSMG is supported by the Parks and People Foundation (PPF), whose vision is to “enhance the health and beauty” of communities

and parks in Baltimore (Parks and People Foundation, 2009). Currently there are 11 gardeners who tend 17 plots. Surplus food from the garden is donated to various organizations in the neighborhood, including two local churches that manage soup kitchens, in addition to families and individuals.



*Figure 1.* Map of study area in Baltimore, Maryland (Mike Boruta, 2010)

The second site, the West Side Community Garden (WSCG), is located in the West State Street Park in Athens, Ohio (Figure 2). The city of Athens is the county seat of Athens County and also home to Ohio University, founded in 1804. The Athens City Planning Department estimates the year-round population of Athens to be around 5,500. Athens' population increases by about 20,000 during the school year, making it primarily a college town (Paul Logue, personal communication, May 3, 2010). Court Street, the heart of the brick-lined "Uptown" district, is filled with bars, restaurants, bookshops, and boutiques. After the first permanent settlers came to Athens in 1797, agriculture and basic industry, such as cabinetmaking and milling, drove the local economy. After the Civil War, coal was found and mined in areas just outside of Athens; however, this industry

has all but disappeared from the area. The university is now the largest employer in Athens (League of Women Voters, 1979). Most of the student population is found closest to the Uptown area and many permanent residents are located close to town.

Over 88% of Athens 25,500 residents are Caucasian, while African Americans, Latinos, and Asians comprise most of the remaining population (US Census Bureau, 2010). On average, less than 1% of the population in Athens utilizes Athens Transit, the public transportation option, on any given day throughout the year (Mary Dailey, personal communication, March 12, 2010; US Census Bureau, 2010). The WSCG is managed by Community Food Initiatives (CFI), an organization established to promote food security and develop a strong local food system (Community Food Initiatives, 2009). The WSCG was established in the early 1980s by a group of college students who wanted to start growing their own food. Currently, there are approximately 95 plots tended by over 120 gardeners. Ten percent of everything harvested in the garden must be donated to CFI for social service agencies in need.



*Figure 2.* Map of study area in Athens, Ohio (Mike Boruta, 2009)

In this study, I argue that community gardens engage gardeners and the community with food systems in Baltimore and Athens and this contributes to improved food security. Interviews with several gardeners at both sites indicate access to fresh food is improved during the growing season and notably improved during the non-growing season if techniques such as canning and freezing are utilized. Donations from both gardens are considerable and also have a large impact on both communities. This study demonstrates that similar challenges exist in many community gardens. Lastly, I argue community gardens are most successful when members from the community take ownership and responsibility of the garden.

First, this study will explore the history of development for each garden and the gardening policies in place today. Next, it looks at the different approaches used in developing a community garden; the top-down approach and the bottom-up approach. Examples of each approach are then provided. Challenges faced by gardeners and organizations during development and advice from gardeners and organizations are highlighted. Finally, this study evaluates the local food environment of the Broadway East neighborhood in Baltimore and the city of Athens and the contributions of the DSMG and WSCG.

## CHAPTER 2: THE EVOLUTION OF FOOD INSECURITY AND CONTEMPORARY RESPONSES

### Food Insecurity in the United States

Food insecurity, defined by the United States Department of Agriculture (USDA) as the inability to access enough nutritionally adequate food for an “active and healthy life at all times,” receives little attention in the United States from policy makers and the media, making the problem nearly invisible to many Americans (Berg, 2008; USDA, 2009). The relatively easy manner in which food is obtained in the United States prevents many Americans from experiencing firsthand how the food system works. Furthermore, no federal department focuses solely on urban food security and city planning departments often do not perceive urban hunger as a pressing issue (Pothukuchi and Kaufman, 1999). However, households with limited financial resources are likely to suffer from food insecurity due to the nature of the economic system which dominates food acquisition and distribution (Heynen, 2006; Morton et al., 2008).

With respect to food insecurity, the USDA stresses the “availability of nutritionally adequate and safe foods” and the ability of populations “to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)” (USDA, 2009). The USDA’s definition is one of many in circulation. Maxwell (2000) compiled a list of over 32 different definitions of “food insecurity” published between 1975 and 1991. In the early 1980’s, Sen (1981) changed the way people thought about food insecurity when he published work on entitlements. He attributed food insecurity, and specifically famine, to



a decline in entitlements and not of a decline in food availability. According to Sen, this led to an inequitable distribution of food and, ultimately, to food insecurity for poorer segments of the population (Sen, 1981). As difficult as it is to define food insecurity, measuring it poses an even greater challenge. In part, this is due to the fact that the first measurements were not taken until the 1960s. Likewise, the first official report using census data was only released in 1995. As a result, food insecurity was largely ignored by policy makers. Except during holidays and natural disasters, the mainstream media also ignored the issue (Berg, 2008).

The USDA is the government agency charged with measuring and preventing food insecurity. However, they only measure household food security through a supplemental survey to the annual Current Population Survey (USDA, 2009). Conducting such studies is difficult because data are self-reported (Berg, 2008). Individual food insecurity is not measured independently of household food insecurity but is estimated by the number of food insecure households (USDA, 2007). Household food insecurity occurs when one or more members of a household are unable to acquire adequate food whereas individual food insecurity refers to malnutrition at an individual level due to insufficient food intake (Derose and Millman, 1998). Thus, individual food insecurity may occur within a household judged not to be experiencing food insecurity. According to the USDA (2009), households suffering from food insecurity are classified as either experiencing low food security (defined as a household having reduced “quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted”) or very low food security (eating patterns are disrupted

and “food intake is reduced because the household lacked money and other resources for food.”) Conversely, households considered food secure are classified as having either marginal food security or high food security (USDA, 2009).

Certain groups are more likely to experience food insecurity than others on a household level. These include elderly households, single-parent households, and large households (Rose, 1999). Rose (1999) found that households with children reporting food insecurity were more severely distressed because most adults would consume less to ensure adequate food for their children. In 2008, an estimated 16.7 million children and 32.4 million adults experienced food insecurity (USDA, 2009). Although income is the single largest predictor of food insecurity, not everybody below the poverty line is food insecure (Drewnowski and Specter, 2004). In fact, only about one-third of all low-income households, or those living at 185 percent below the poverty line, were food insecure in 2007 (Berg, 2008). While some low-income households experiencing food security might obtain enough food from friends, relatives, gardens, or government assistance, the others suffer from an uneven distribution of healthy and affordable foods. The United States is one of the most agriculturally productive countries in the world; however, the commodification of food has created a challenge for those not possessing enough resources to obtain quality food (Heynen, 2006). The transformation undergone by the agriculture industry has contributed to this inequality.

Three shifts in approaches to food security and the way people think about food security are notable. The first shift is viewing food security on an individual and household level instead of a national or global level. This indicates that local

environments play a large role in addressing issues of food security. The second shift looks at food access in place of food supply and addresses long-term sufficiency over immediate relief. The third shift suggests a move away from objective indicators of food security, such as caloric intake, to subjective indicators, such as people's experiences related to food security (Maxwell, 2000). These shifts signify that the literature is moving away from narrowly defining food security to studying food systems as a whole.

#### Industrialization of Agriculture in the United States

Although trade networks existed in the 1700s, most families obtained their food from small, self-sufficient farms (Shammas, 1982). Most farms were less than seventy-five acres and produced a wide range of goods, including fruits, vegetables, dairy products and tobacco (Lyson, 2004). Farming techniques were labor-intensive, utilizing basic tools instead of draft animals (Padgitt et al., 2000). Most of the commodities produced on farms were not sold on the market but were either cultivated for home consumption or used to barter for other goods and services (Lyson, 2004). These farming practices began to change during the 19<sup>th</sup> and early 20<sup>th</sup> centuries as the agriculture sector began to mechanize (Lyson, 2004). About the same time, in 1862, the Morrill Land Grant Act allocated land to each state for the purpose of agricultural education (Duemer, 2007). Thanks to these and other developments, farm acreage grew quickly. As demand for food increased, farms began producing for profit and growing a less diverse range of crops (Lyson, 2004). The introduction of tractors, refrigeration, and improved transportation also led to increased production and profits (Padgitt et al., 2000).

These technological advancements caused the number of farms to decrease and the size of farms to dramatically increase during the early 20<sup>th</sup> century (Dimitri et al., 2005). Between 1910 and 1997, the number of farms in the U.S. decreased from over six million farms to just over two million (Table 1) (Lyson, 2004). These tremendous changes were spurred by three “agricultural revolutions.” The first, the mechanical revolution, began during the 1800s with the introduction of tractors and other farm machinery (Padgitt et al., 2000). The chemical revolution began shortly after World War II with the introduction of herbicides and pesticides. Between 1945 and 1980, chemical use increased more than 715 percent (Lyson, 2004). Finally, the biotechnology revolution, which began in the 1980s, ushered in a wave of genetically modified organisms or GMOs (Padgitt et al., 2000). The introduction of chemicals and genetic engineering has had a direct effect on the number of acres devoted to cropland as well as the variety of commodities produced per farm (Lyson, 2004). These new technologies also made farmers more dependent on seed-producing corporations such as Monsanto. “Terminator seeds,” in particular, make farming increasingly expensive as farmers are required to purchase new seeds every year instead of relying on natural regeneration (Shiva, 2004).

Table 1

*Changes in the Structure of Agriculture from 1910 to 1997: Farms, Acres, Tractors and Fertilizers (Sources: Agricultural Statistics, various years, US Census of Agriculture, 1997) (from Lyson, 2004, p. 21)*

| Year | Farms     | Acres (1,000) | Tractors  | Fertilizer (tons) |
|------|-----------|---------------|-----------|-------------------|
| 1910 | 6,361,502 | 878,798       | 6,000     | 5,547             |
| 1920 | 6,448,343 | 955,884       | 540,488   | 7,176             |
| 1930 | 6,288,648 | 986,771       | 920,000   | 8,425             |
| 1940 | 6,096,799 | 1,060,852     | 1,545,000 | 8,656             |
| 1950 | 5,382,162 | 1,158,566     | 3,394,000 | 20,991            |
| 1960 | 3,962,520 | 1,175,646     | 4,770,000 | 25,400            |
| 1970 | 2,954,200 | 1,102,769     | 4,619,000 | 38,292            |
| 1980 | 2,432,510 | 1,038,855     | 4,775,000 | 50,368            |
| 1990 | 2,140,420 | 987,420       | 4,305,000 | 47,700            |
| 1997 | 2,191,360 | 953,500       | 3,936,000 | 55,000            |

Agriculture in the United States has evolved into a high profit-yielding industry dominated by large mega-farms (Lyson, 2004). Government subsidies have further increased the profits of these mega-farms without benefiting consumers. These subsidies, which accounted for over 30% of large farms' net income between 1997 and 2006, often result in a production surplus (Jordan et al., 2007). This surplus floods the world market with "cheap goods" and makes it increasingly difficult for small farmers both domestically and globally to compete (Shiva, 2004). Thanks to government subsidies, the few large corporations dominating the market profit regardless of market fluctuations or poor harvests. Not only is it becoming increasingly difficult to distribute food equally to consumers, it is becoming increasingly difficult for small farmers to succeed in an extremely competitive market. The shift to mass production means fewer people have direct access to food (Lyson, 2004). While the fundamental right to food has been

recognized internationally by organizations such as the Food and Agriculture Organization of the United Nations, the unequal distribution of quality food has resulted in injustices and food insecurity (Anderson, 2008).

#### The Unequal Distribution of Food and Public Health Implications

Since the availability and price of food in the U.S. is heavily influenced by government subsidies and multinational corporations, citizens lacking financial resources or government assistance have found accessing nutritious food difficult. This problem is worsened by the uneven distribution of quality food outlets, which has resulted in the creation of food deserts (Larsen and Gilliland, 2008). Food deserts are defined here as “places where people do not have easy access to healthy, fresh foods, particularly if they are poor and have limited mobility” (Furey et al., 2001, p. 1). Access to quality food is measured by the ability to *purchase* quality food and the ability to *obtain* quality food (Whelan et al., 2002). The ability to purchase quality food is related to affordability and is measured by the price and variety offered at a particular food store. The ability to purchase quality food is also related to income and the availability of food assistance. The ability to obtain quality foods is closely tied to local transportation options, (e.g., access to personal vehicles, public transportation, taxi services, and walking and biking).

Food deserts are often characterized by an abundance of fast food restaurants and a limited number of stores offering quality food. Fast food restaurants often predominate in low-income and predominately African American neighborhoods (Block et al., 2004; Larsen and Gilliland, 2008). Lewis et al. (2005) also found that restaurants (both full service and fast food) in low-income neighborhoods offer fewer healthy menu options

than restaurants located in more affluent neighborhoods. One study details four “pathways” causing a high concentration of fast food restaurants in low-income and predominately African American neighborhoods. The first pathway deals with targeted advertising, including the use of billboard advertisements in predominately African American neighborhoods (Kwate, 2008). Also, it has been found that more fast food commercials air during television shows aimed at African American viewers (Bowman et al., 2004). The second pathway takes into account economic characteristics such as a weak retail climate and the presence of low-wage labor. Such conditions favor the proliferation of fast food restaurants. The third pathway deals with zoning regulations which prevent fast food restaurants from opening in affluent communities. In addition, many low-income neighborhoods are viewed as possessing limited historic value, and therefore obtaining land is relatively easy for fast food establishments. The fourth pathway deals with social processes and the lack of political clout and “voice” possessed by many low-income residents (Kwate, 2008).

While the density of fast food restaurants is higher in low-income and minority neighborhoods, the availability of supermarkets is lower among these populations. Morland et al., (2002a) found that supermarkets in Mississippi, North Carolina, Maryland, and Minnesota were four times more prevalent in predominately white areas compared to predominately African American areas and they were three times more prevalent in wealthy neighborhoods than low-income neighborhoods. The same factors contributing to the abundance of fast food restaurants also contributes to the limited availability of supermarkets in economically disadvantaged and minority neighborhoods,

including a weak retail climate. In addition, marginal profitability and lack of adequate space discourage the establishment of large chain stores. Supermarkets often experience fluctuating profits in urban areas because of shoppers' dependence on food stamps, which are typically distributed at the beginning of each month (Nayga and Weinberg, 1999). Rural populations are also disadvantaged as large chain grocery retailers often locate on the fringe of metropolitan areas, forcing residents to travel greater distances to obtain affordable food (Blanchard and Lyson, 2002). In both urban and rural environments, populations experience higher prices due to the lack of chain stores, which generally offer lower prices (Blanchard and Lyson, 2002; Chung and Myers, 1999).

Another complicating factor is the high cost of staple foods. One study found that non-chain, smaller grocery stores, along with convenience stores, typically charge higher prices than large chain supermarkets (Chung and Myers, 1999). Small, non-chain grocery stores are more commonly located in predominately African American neighborhoods compared to predominately Caucasian neighborhoods (Morland et al., 2002b). As Chung and Myers (1999) found, most chain stores offering lower prices are located in suburbs. Because many residents in minority and low-income communities do not possess an automobile and do not have convenient access to public transportation, it is increasingly difficult for these populations to obtain healthy and affordable food (Bullard, 2004). As a result, residents in these communities are more likely to reside in food deserts compared to residents of high-income and predominately white neighborhoods (Larsen and Gilliland, 2008). The uneven distribution of healthy and affordable food coupled with the



inability of some residents to purchase food through financial capital or government entitlements has many negative public health implications, including obesity.

Obesity occurs from an “imbalance between energy intake and expenditure” (Skidmore and Yarnell, 2004, p. 819). Approximately 34% of adults in the U.S. over the age of 20 are obese, where obesity is defined as having a Body Mass Index (BMI), which compares a person’s weight to their height, of over 30. In addition, nearly 32% of children (ages 2-19) were considered obese in 2007 (CDC, 2007). A study of women in California found that 31% of food insecure women were obese compared with 16.2% of food secure women (Adams et al., 2003). Studies have shown that a person’s area of residence, or environment, affects the prevalence of obesity. For example, one study found that residents in economically disadvantaged neighborhoods had lower heights, higher BMI’s, and larger waists (Ellaway et al., 1997). Furthermore, a separate study determined that incidence of coronary disease was more prevalent in neighborhoods with lower income levels, lower levels of education, and lower job statuses (Diez-Roux et al., 2001). These studies emphasize that the lack of healthy food contributes to both food insecurity and obesity.

Obesity is linked with high levels of mortality as well as harmful medical and psychological consequences. Medical consequences of obesity include cardiovascular and coronary disease, diabetes, osteoarthritis, and certain types of cancer. Psychological consequences include anxiety, depression, and low self-esteem (Wyatt et al., 2006). Koplan et al. (2005) estimated that children born in 2000 have a 30% to 40% chance of being diagnosed with Type-2 diabetes due to increasing obesity rates. In addition,

treatment for obesity contributes to extremely high health care costs (Friedman and Fanning, 2004). It was reported that in 2004, between \$98 billion and \$129 billion was spent on health care costs related to obesity in adults alone (Koplan et al., 2005).

Many factors contribute to increasing obesity rates including less time spent engaged in physical activities, increased consumption of prepared foods, the lower cost of grains and meats, larger portion sizes, and increased consumption of fast foods (Bowman et al., 2004; Bowman and Vineyard, 2004; Zhang and Wang, 2004). Fast food consumption typically results in high energy density diets, which are often high in calories and fat and low in vegetables and fruit (Drewnowski and Specter, 2004). Increased advertising, more fast food locations, less time available for cooking, and low prices offered at fast food establishments all contribute to the increased consumption of fast food (Block et al., 2004; Bowman et al., 2004; Bowman and Vineyard, 2004; Drewnowski and Specter, 2004).

Public health experts have recommended treating obesity by promoting walking instead of driving to school and other destinations and encouraging healthy diets through improved product labeling (Koplan et al., 2005). However, focus on residents' environments is also necessary. It is suggested that policymakers consider putting restrictions on fast food advertising, especially in targeted locations. Increasing access and improving public transportation to stores offering quality food options and farmers' markets is also important (Diez-Roux et al., 2001). By focusing on the environment *and* individual habits, both food insecurity and obesity levels could be lowered. The CFS

movement has gained momentum as part of a larger effort to localize food production and provide greater and equal access to healthy and affordable food.

#### Implementing Policy: Community Food Security & Other Recommendations

Over the last few decades, the CFS movement has sought to localize food production and overcome the unequal distribution of food. The movement is growing in popularity as more people make the link between food production and food consumption (Lyson, 2004). CFS incorporates environmentally sustainable techniques in an economically and socially just manner by encouraging community gardening, farmers' markets, community supported agriculture (CSA), and food processing microenterprises (Gottlieb and Fisher, 1996). The movement towards CFS is a response to the lack of focus paid to current food access problems by city agencies and planning departments (Allen, 1999).

Since the industrialization of agriculture, most people have little or no say in the way their food is produced. Instead, these decisions are made by small groups of executives and affect millions of people. CFS works to restore a democratic voice and relocalize the production of food in order to ensure all community members obtain enough nutritious food through safe and culturally acceptable means (Hamm and Bellows, 2003). A need for CFS exists because it prioritizes the provision of affordable and quality foods to low-income residents through localized and sustainable production (Allen, 1999). In addition, CFS has demonstrated an ability to increase local economic development by maintaining and enhancing capital within a community (Alkon, 2008;

Lyson, 2004). Lastly, CFS promotes community and individual empowerment as it gives a voice to residents who might have previously lacked clout (Allen, 1999).

While antihunger movements seek to relieve immediate hunger problems through emergency food programs, CFS attempts to improve food security over the longer term (Hamm and Bellows, 2003). Also in contrast to anti-hunger movements, CFS uses multiple indicators to assess the extent of food insecurity in a particular community. Antihunger indicators of food insecurity are developed from need-based assessments and statistics on food program participation, including the Food Stamp Program, Women, Infants, and Children (WIC), and school breakfast and lunch programs. Indicators of the CFS model include accessibility to quality food, public transportation options, rates of diet-related health problems, nutrition education options, analysis of current local food production systems, and the availability of emergency food options (Winne, et al., 2000).

Other recommendations have been forwarded to promote food security and attempt to prevent obeseogenic environments. One suggestion is urging municipalities to move towards a more democratic food system (Anderson, 2008; Pothukuchi and Kaufman, 1999). First, it is recommended that citizens create Food Policy Councils (FPCs). The role of FPCs is to monitor a city's food system and devise plans to improve food security through recommendations such as improving transportation to supermarkets for low-income residents, establishing approaches towards CFS such as community gardening and farmers' markets, educating residents on nutrition, and improving social capital through urban/rural relationships to connect production with consumption. These councils are usually comprised of a variety of representatives including farmers,

nutritionists, antihunger advocates, food retailers, and sometimes government officials. These councils are not funded by the government but their voices are occasionally heard by policymakers (Pothukuchi and Kaufman, 1999).

Another recommendation by food security advocates is to create a Department of Food, similar to a city's Water Department (Pothukuchi and Kaufman, 1999). This department could devise a comprehensive plan to ensure the equal distribution of food in a municipality by implementing approaches to community food security and by creating "foodsheds," which would examine the city's complete food system (Gottlieb and Fisher, 1996). Anderson (2008) suggests a "rights-based food system" to connect consumers with producers and alleviate the inherent inequalities produced from the current agricultural system. Criteria for a "rights-based food system" include the "absence of human exploitation, democratic decision making, multiple independent buyers, absence of resource exploitation, decent wages, and fair prices" (Anderson, 2008, p. 601).

The USDA is currently the only agency contributing to food production decisions in the United States. Additionally, the current system does not give citizens a voice in food decisions; however, if community members and eventually municipalities mobilize to advocate for change, results could be successful (Pothukuchi and Kaufman, 1999). By implementing a more democratic food system through FPCs and City Food Departments, citizens are able to contribute to decisions made about their food production. Therefore, a "bottom-up" approach might be most viable in creating federal policy change.

### The Community Garden Approach

Of the various CFS approaches, community gardening may be the most viable in environments where low-income populations have few food options (Gottlieb and Fisher, 1996; Lyson, 2004). Here, a community garden is defined as “an organized, grassroots initiative whereby a section of land is used to produce food or flowers or both in an urban environment for the personal use or collective benefit of its members” (Glover, 2003, p. 265). Unlike safety net programs, which often foster dependency, gardens provide community members with self-reliant strategies for obtaining healthy and affordable food (Winne, 2003). Paradoxically, as a great deal of agricultural land is being lost to suburbanization and sprawl, vacant lots, where urban community gardens are often located, are becoming increasingly available in central cities as businesses and populations migrate to the urban fringe (Brown and Jameton, 2000). In urban environments vacant lots are often rented to gardeners until more lucrative uses for these spaces are identified (Schmelzkopf, 1995). Gardens in rural areas and small towns usually utilize spaces that are available and convenient to gardeners. They also take resource availability, such as water and soil, into account.

Community gardens have been prevalent in urban communities for more than 200 years during which time they have experienced “highs” and “lows” with respect to popularity. During the late 19<sup>th</sup> century, community gardens emerged in response to the national economic depression and increased migration to urban areas (Lautenschlager and Smith, 2007; Saldivar-Tanaka and Krasny, 2004). During World War I, another boom in community gardens occurred with the proliferation of “Liberty Gardens” (Kurtz, 2001).

Liberty gardens allowed residents to become more self-sufficient at a time when food shortages were not uncommon. During World War II, community gardens became known as “Victory Gardens” (Kurtz, 2001). It was considered one’s patriotic duty to plant a victory garden and cities encouraged their establishment on vacant lots (Miller, 2003; Moore, 2006). Victory gardens represented an important act of “domestic participation” because they allowed citizens to become more self-sufficient which in turn benefited the country. It also allowed citizenship to be viewed as “a function of consumption,” consequently encouraging production (Miller, 2003, p. 404). Many national gardening campaigns were initiated through organizations such as Food Fights for Freedom and the Office of Civilian Defense, which promoted continued participation in community gardens (Lawson, 2005).

The first decline in community gardening occurred after World War II and is most likely due to the development of a more industrialized agricultural system (Saldivar-Tanaka and Krasny, 2004). Toward the end of World War II, speakers at the National Victory Garden Conference, which included staff members of the USDA, encouraged citizens to continue gardening “for gardening’s sake” (Lawson, 2005, p. 187). By this time it was apparent that less focus was going to be placed on the national gardening campaign, which left gardeners on their own. It should also be noted that backyard gardens increased during this period due to an increase in suburban development (Lawson, 2005). During the 1960s and 1970s, urban renewal programs created opportunities for the establishment of community gardens in America’s central cities, many of which are still in existence (Smith and Kurtz, 2003).

Today's community gardens come in many forms and are utilized by people of all ages and ethnicities. Some community gardens are divided into private plots tended by a specific proprietor, while others are tended and shared by all of the gardeners (Lawson, 2005). Depending on the geographic location of this garden type, some will have waiting lists of over two years while others are available immediately (Kurtz, 2001). Other gardens reflect a neighborhood's ethnicity through the types of vegetables they grow and the way they are organized. For example, in many Latino community gardens in New York, one will find casitas or small shack-like structures, which are mainly run by men and serve a more social purpose (Schmelzkopf, 1995). In a Sri Lankan-dominated community garden in Toronto, gardeners actually obtain some of their seeds from Sri Lanka so they are able to grow foods of cultural significance (Baker, 2004). Many community gardens take on the role of a public green space where community members are able to enjoy the colorful vegetables and flowers as they pass by (Kurtz, 2001). These gardens often serve as safe, clean, and healthy spaces for adults and children to utilize. Some community gardens also represent a drug-free space in low-income communities where drug trafficking and drug use often dominate the landscape (Kurtz, 2001; Schmelzkopf, 1995).

Historically, government agencies aided in the construction of community gardens; however, contemporary community gardens often additionally rely on the involvement of neighborhood members, community groups, and non-profit organizations (Kurtz, 2001). In many cases government and non-government agencies are called upon for assistance as it is often difficult to secure the needed space for gardens. Community



gardens today allow for many different people of a neighborhood to come together and become active members in their community while working towards a common goal (Glover, 2003). Many community gardens today still rely on the assistance of government agencies and non-profit groups to aid in advocacy, provide material and technical support, raise public consciousness, assist with garden design and construction, facilitate preservation, and foster education (Saldivar-Tanaka and Krasny, 2004).

Examples of non-profit organizations involved with community gardening include the Green Guerillas in New York City, the LA Community Garden Council in Los Angeles, and Gateway Greening in St. Louis. The primary mission of the Green Guerillas is to assist with the cultivation of community gardens by distributing plants, materials and advice and by providing organizational assistance (Green Guerillas, 2008). The LA Community Garden Council works to connect people with community gardens and also helps solve problems associated with developing a community garden (LA Community Garden Council, 2006). Gateway Greening strives to improve neighborhoods by assisting with new community gardening projects and food education (Gateway Greening, 2010). Government agencies are also influential and include groups such as Green Thumb, associated with the New York City Department of Parks and Recreation, and Get Green, run by the City of Columbus in Ohio. Green Thumb assists gardeners in obtaining vacant lots, aids in garden design and construction, and provides plants and gardening supplies (Saldivar-Tanaka and Krasny, 2004). In addition, the group encourages participation and neighborhood revitalization (Green Thumb, 2010). Get Green provides interested gardening groups with their *Community Garden Resource Manual*, which contains

pertinent information regarding securing city land, obtaining resources, and availability of gardening materials (Get Green, 2010). To support a successful garden, Winne (2008) suggests that cities make land available to interested groups for at least five years and provide start-up funding, education, and organizational assistance.

Carole Nemore states, “community gardens cultivate more than plants, they cultivate communities” (1998, p. 1). Similarly, Winne (2008) believes that “garden” is not the most important word in “community garden.” Thus, community gardens require substantial participation in order to be successful. Studies have shown gardens experience a higher success rate when they are developed through a “bottom-up” approach, which occurs when the community is involved from the beginning of the planning process. Organizations such as The Green Guerillas realized that garden success rates improve when they offer gardeners education and gardening materials rather than a pre-planted garden. This success is perhaps due to the gardeners’ desire to build the garden themselves, rather than adopt a garden developed through a “top-down” approach, which would be planned and perhaps even planted by an outside organization (Schmelzkopf, 1995). A top-down approach to development is generally defined by an outside governing body while a bottom-up approach is identified by the community (Laverack and Labonte, 2000). The Green Guerillas have also put land acquisition in the hands of the gardeners, thus community members are involved in the garden from the very beginning (Schmelzkopf, 1995). After land is acquired, community members must make many decisions including what they want their garden to provide (fruits, vegetables, flowers, herbs, etc.), who will garden (only members from the neighborhood, outside

community members), when gardening will occur (hours of garden), and how gardening will proceed (land security, gardening supplies) (Lawson, 2005). The gardeners must then begin to literally grow their garden from the ground up.

Currently, there are several ways community members can acquire space for gardens.<sup>1</sup> One way is to lease space from the city, which in some cases, requires residents to start a block association, petition for land from the city, and take workshops about leasing land. A second way is to lease private land which is somewhat easier because it only entails negotiating with the land owner (Schmelzkopf, 1995). In all cases, community gardeners are constantly trying to defend their access to land they currently utilize, especially as the land becomes more valuable to the city. Conversely, in many old industrial cities, space for gardens is becoming increasingly available as cities try to cope with the problem of rundown vacant lots (Prendergast, 2009).

Brown and Jameton (2000) offer insights to those wishing to initiate community gardening. They first recommend improving zoning policies which would help community gardeners secure space. Then, safety nets should be put into place, like those on rural farms to protect urban gardeners from hazards and poor harvests. Food safety experts could also educate gardeners on proper ways to handle, prepare, and store their produce. Public health officials could provide information on nutrition and healthy recipes for low-income budgets (Brown and Jameton, 2000). There are also several ways in which a city can assist, including ongoing education for gardeners and garden staff, ensuring partnerships are forged between gardeners and aid organizations, educating the

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<sup>1</sup> They are not always as easy as guerilla-style gardening, which involves physically obtaining land through squatting.

public on the benefits of community gardens, and experimenting with new ideas, such as gardening classes, cooking classes, and seed programs (Twiss et al., 2003).

Participation has proved important since the days of Victory Gardens. Miller (2003, p. 402) asserts that Victory Gardens helped people cope with the “perceived loss of order” that World War II caused and helped “boost attitudes, morale, and feelings.” Today, through gardening, many citizens feel they have a stronger voice in the community because they have become more knowledgeable and have developed new skills in gardening which make them feel more powerful. This enables them to participate in community decisions and for the community to function more democratically (Levkoe, 2006). Gardens also allow for a feeling of “neighborhood ownership and civic pride” which aids in community development (Twiss et al., 2003, p. 1435). The same has been found true for youth. Youth who have participated in school gardening programs exhibit improved social skills and classroom behavior (Lautenschlager and Smith, 2006).

Community gardens have also been found to improve relationships among those in the neighborhood. For example, members of the Frances Beavis garden in Toronto have established friendships with other gardeners, improving the coherence of the group and allowing them to create workable relationships with gardening organizations. The same was found true in the Riverside Community Garden in Toronto where one gardener asserts she and a new gardener friend, who had previously neglected each other’s presence, now share recipes and gardening tips (Baker, 2004). Through these diverse relationships, citizens are exposed to new beliefs and values, which help promote a more collective life experience rather than an individualistic mindset (Glover et al., 2005).

Lastly, as gardening members become more familiar with each other, they are able to achieve more, such as collaborating and accomplishing tasks during meetings and producing more food through collective gardening (Smith and Kurtz, 2003).

Since many community gardens have replaced vacant lots in low-income neighborhoods, they aid in city beautification (Saldivar-Tanaka and Krasny, 2004). They offer open space for residents to enjoy while also providing an opportunity for community members to participate and produce their own food. Many community gardens help to compensate for the failing conditions of neglected areas by providing a safe and clean open space for residents to enjoy (Lawson, 2005). Furthermore, gardeners have commented on the physical space created by their gardens and how this space compares to their small apartments and the sense of openness they feel when working in the garden (Schmelzkopf, 1995). For women, especially women whose primary responsibility is childcare, gardens offer safety and security, while also providing a space for their children. Additionally, in low-income neighborhoods, community gardens have been linked to lower rates of crime and vandalism (Schmelzkopf, 1995). Gardens also provide a place for community members to hold events such as community gatherings, birthday and holiday parties, barbecues, block parties, fundraising activities, workshops, and cultural events (Saldivar-Tanaka and Krasny, 2004). Since so many activities are held in the gardens, communities inevitably become safer places (Schmelzkopf, 1995). In Toronto, it was also found that gardens lowered maintenance costs, lowered vacancy rates, attracted new tenants to buildings, and lowered social conflicts (Baker, 2004).

Community gardens, along with many other local-food based movements such as farmer's markets and urban agriculture, have become important resources for the community food security movement (Baker, 2004). Food security has been an important issue for low-income residents for centuries and in times of economic crisis, could be important to many more (Lawson, 2005). In many low-income neighborhoods, residents are either not located in close proximity to any type of grocery store or are not located near stores offering healthy and affordable food (Baker, 2004). A study in Newark, New Jersey showed that 44.4% of 189 respondents considered growing their own food a socio-economic benefit of community gardening (Patel, 1991). Patel (1991) also found that in 1989, 405 community gardens in Newark, New Jersey produced \$450,000 worth of produce which allowed garden participants to substantially reduce their food bills. Additionally, a youth garden in Berkeley, California earned \$10,233 from sales in 1998 alone (Lawson, 2005). Some gardens produced over five times the national production standard of vegetables (Baker, 2004). An upstate New York survey indicated 60% of low-income gardeners chose to garden because it provided them with a significant food supply (Armstrong, 2000). Gardeners in Toronto thought of the food produced in their gardens as a substitute for store-bought food; they also believed gardening made a considerable difference in their household food budget (Wakefield et al., 2007). In addition, community gardens provide places for ethnically diverse cultures to grow familiar foods, which can sometimes prove difficult to find in local grocery stores (Baker, 2004). Gardeners from different backgrounds also contribute cultural knowledge to community gardens. For example, techniques from China were utilized in a garden in

Toronto which included “companion planting, vertical gardening, and succession planting” which increased the garden’s productivity (Baker, 2004, p. 314).

Community gardens also represent a part of civic agriculture, which has been defined by Lyson (2000, p. 1) as a “locally-based agricultural and food production system that is tightly linked to a community’s social and economic development.” Community gardens present citizens with a way to obtain food without resorting to mass production, which typically utilizes chemicals, increased transportation, and escalated power to the industrialized agriculture entity, thus allowing for the consumption of healthier and more sustainable foods (Kurtz, 2001; Lyson, 2004). One study focused on urban youth in Minneapolis shows that participants in a community gardening program have a better understanding of the food system, a highly-developed understanding of the gardening process, and an enhanced understanding of healthy versus unhealthy foods compared to youth who did not participate in the community gardening program (Lautenschlager and Smith, 2007). This implies that the act of gardening makes one more aware of consumption choices and introduces children to healthier lifestyles.

Furthermore, evidence suggests that a higher consumption of fruits and vegetables reduces the risk of contracting a number of diseases, including cardio-vascular disease, cancer and stroke (Alaimo et al., 2008). A study performed in Genesee County, Michigan proves that survey respondents who have participated in community gardening consume more fruits and vegetables on a daily basis than those who have not participated in community gardening. Interestingly, the study also noted that the majority of stores

readily available to the respondents were corner stores specializing in alcohol, soda, and chips (Alaimo et al., 2008).

Urban green spaces have long been viewed as amenities that enhance public health by making the urban environment greener, healthier, wealthier, and more livable (Young, 1995). Historically, community gardens have satisfied the recreational needs of urban dwellers by giving them the opportunity to spend time outdoors performing physical tasks (Miller, 2003). Contemporary community gardens are no different. They promote physical fitness and recreation, reduce stress among gardeners, improve air quality through carbon sequestration, and are aesthetically pleasing to the eye (Lawson, 2005; Levkoe, 2006; Saldivar-Tanaka and Krasny, 2004).

On the other hand, some organizations, such as the Office of the Mayor in New York City, have questioned the safety of soils in urban environments, asserting that community gardens should be limited to growing flowers, shrubs, and trees instead of vegetables and other produce. Of particular concern is the possibility that lead and other carcinogens can contaminate the soils of vacant lots (Schmelzkopf, 1995). Physically accessing community gardens poses problems as well. Most urban gardens require the use of fences and locks to prevent vandalism and theft (Kurtz, 2001; Salvidar-Tanaka and Krasny, 2004; Schmelzkopf, 1995). As a result, residents in a community might find it difficult to become involved with a garden if locks and fences close these spaces off to the general public (Schmelzkopf, 1995). Confusion over what days and times a garden is open and who should be contacted should someone want to get involved may complicate matters (Smith and Kurtz, 2003).



A comparative study of three community gardens in Minneapolis casts light on the effect that fencing has on the community. It was found that outside community members, or those who were not currently gardening, felt more welcome in gardens that were not fenced in (Kurtz, 2001). The Thomas Avenue Victory Garden is not surrounded by a fence (although an adjacent fence does exist on two sides of the plot) and as a result creates “a sense of place” and “allows fluid movement through and interaction within the place” (Kurtz, 2001, p. 665). On the other hand, the Columbus Garden is surrounded by an eight-foot tall fence and gate to protect it from vandalism. Tensions have flared at this garden over usage and outside community members have expressed feelings of exclusion (Kurtz, 2001). The community as a whole would benefit if the garden were unfenced, but theft and vandalism are very real concerns.

Gardeners also find it difficult to obtain the resources they need, such as fertile soil, gardening tools, seeds, and water to maintain their gardens (Schmelzkopf, 1995). In a survey of 20 community gardens in New York City, half of them reported a lack of resources as being an issue (Saldivar-Tanaka and Krasny, 2004). In addition, larcenists have been known to steal gardening supplies and crops (Schmelzkopf, 1995). Children gardening in Minneapolis have noted that pests and rodents have also caused damage to their gardens, a problem which could be rectified with adequate fencing (Lautenschlager and Smith, 2007).

## Discussion

Food insecurity in the United States will continue to escalate if changes are not made to the current food production system. The advent of industrial agriculture has

created a food system that simultaneously produces a surplus of food while contributing to food insecurity. Lacking money to purchase quality food, low-income populations suffer disproportionately and must often turn to government safety nets, such as the Food Stamp Program. However, the safety nets currently in place still make it extremely difficult to achieve food security as these entitlements alone are not nearly enough to maintain a healthy diet. The creation of food deserts in low-income and minority neighborhoods worsens the problem as quality food choices are limited and staple food prices are more expensive.

Residents in both urban and rural settings have the option of traveling to suburbs to shop at large and less expensive grocery stores or to dine at healthy restaurants, but they usually do not have the means. Both public and automobile transportation and time are limited for many low-income residents. Without financial capital, government entitlements, or healthy food choices, food insecurity will undoubtedly result. Oftentimes, the result is obesity and malnutrition. However, policymakers have the ability to change the current food system. As suggested earlier, a bottom-up approach might prove most viable. The lack of voice most consumers have in the current food production process makes it increasingly difficult to campaign for change. However, if community groups mobilize and municipal food departments are created, consumers' voices might be heard at the federal level, resulting in improved food security and decreased levels of obesity.

Despite the barriers that discourage some residents from starting community gardens, communities are still striving to implement them in order to reap the benefits. There are several steps a city can take to assist community members in starting a garden,

including educating stakeholders and decision makers, integrating garden implementation into development strategies, and supporting research of gardens. It is also important that residents get involved in the process and that the city assist the community. Overall, community members and city organizations must remember that the key to successful community gardens begins with participation and support. By implementing approaches to CFS, such as community gardening, opportunities are provided for community members to grow their own food, perhaps even enough to sell for additional income. However, some approaches to CFS have the potential to cause class polarization if they are not implemented in a socially and economically just way. The goals of CFS should be clearly recognized in order to equally serve all community members.

CFS alone cannot resolve the immense food insecurity problem existent today. Municipal institutions need to develop plans and programs to aid the food insecure by developing a Department of Food or enhancing the funding of Food Policy Councils. Most importantly, the USDA needs to continue to implement and drastically increase funding for programs such as the Food Stamp Program, WIC, and school breakfasts and lunches. With these programs working efficiently, CFS can serve as an extremely effective and supplemental way of obtaining quality food, especially in food deserts. The federal safety net has the ability to assist millions of food insecure people; however, community food security can provide communities with long-term food security in an environmentally, socially, and economically sound manner.

### CHAPTER 3: METHODS

To determine the extent to which community gardens make people aware of issues of food security and their involvement with food systems, qualitative methods, especially interviews, were used to gain insights into people's perceptions and experiences related to food security and their perceptions of the gardens' donation policies. Two case studies were utilized in this research; one at the DSMG in Baltimore, Maryland and the second at the WSCG in Athens, Ohio. Case study research, including in-depth interviews and field observations, was preferred to other research, such as surveys, because it allowed me to focus on the current situation of each garden and explore the experiences and sentiments held by different gardeners. When performing multiple-case study research, it is important that generalizations are carefully made (Yin, 1984). Therefore, I cannot assume all community gardens function similarly to these two gardens; however, these case studies have the ability to expand current research on approaches to CFS and people's involvement with food systems.

In addition to interviews, an assessment of the local food environments for Baltimore and Athens was performed using qualitative and quantitative methods. These methods included an assessment of food stores in each area, a price comparison of staple foods identified by the USDA Thrifty Food Plan, and an evaluation of public transportation options. The in-depth interviews were used to examine the perceptions, experiences, and opinions of members of the managing organizations (CFI and PPF), garden managers, and gardeners (Winchester, 2005). Interviews were conducted in June and August 2009 at DSMG and in September and October 2009 at WSCG. Contact with

CFI and PPF, along with the garden managers from each garden, was established and these preliminary contacts and snowball sampling procedures facilitated contact with gardeners at DSMG and WSCG (Johnson and Weller, 2002). It should be noted that food security generally improves during summer months in cities such as Baltimore and Athens. However, in order to determine the contributions community gardens make towards food security, summer research proved beneficial as this is when gardening occurs.

Gardeners at DSMG and WSCG were first asked basic household questions to establish demographic characteristics. I then asked about their gardens, including what is grown and how often their garden plot is tended to determine the purpose and productivity of the garden. Gardeners were asked how and why they got involved with community gardening and what the benefits of community gardening are to discover the extent to which they engage with the food system. Gardeners were also asked of any household food budget changes noticed after they began gardening. In addition, I asked about any sharing or trading of produce which might take place between gardeners or gardens and also their perceptions of the quality of food grown in their gardens. Furthermore, gardeners were asked how food not grown in their gardens is obtained.

Determining the extent to which community gardens contribute to food security may be contextual and greatly differ depending on the location of the garden and its surrounding environment. Therefore, I also evaluated the local food environment in the Broadway East neighborhood of Baltimore and the City of Athens to determine the ease and methods by which residents obtain quality food. In the case of Baltimore, a food

desert exists, defined here as places where people have limited access to healthy and affordable food, and for that reason I assessed residents' ability to purchase quality foods and residents' ability to obtain quality food (Furey et al., 2001). Athens, which is one-tenth the size of Baltimore, benefits from a rich local food system which involves many small-scale farms, a bi-weekly farmers' market, and several grocers selling organic and local foods (City Data, 2007; US Census Bureau, 2000). Thus, the food environments in Baltimore and Athens were evaluated differently.

In order to verify the existence of a food desert in Baltimore, several different methods were utilized. To evaluate the ability of residents in the Broadway East neighborhood to purchase quality food, a survey of the types of food stores and food prices in the area was carried out. The types of food stores were determined by driving the streets in the Broadway East neighborhood. In addition, adjoining neighborhoods were included in the study. These included streets in the Oliver neighborhood to the east (to Hartford Avenue) and South Clifton Park, Darley Park, and Clifton Park to the north. This boundary was chosen for several reasons. First, the gardeners indicated that a grocery store (Food Depot) they often use was located in this area in the Belair Plaza Shopping Center on Belair Road. In addition, the DSMG and the homes of several gardeners are located within these boundaries. Other studies, such as Wolch et al. (2005), have defined "access" as being within one-quarter mile; however, I have used up to one mile to determine "access" in this study area since there are several bus routes covering this area. As the streets were driven, the types of stores were marked on a map with a symbol to identify each classification, which was predetermined. The classifications

included carryout/corner store, supermarket, gas station, and pharmacy. Field observations were taken during visits to these food stores in addition to other stores, including liquor stores and bars/restaurants in the study area. Lastly, transportation options were evaluated, including public transportation routes, to determine the accessibility of various food stores.

Next, a comparison of prices at six supermarkets in Baltimore was carried out. The prices at Food Depot were compared to other supermarkets in Baltimore City and Baltimore County. Four other supermarkets were visited in Baltimore City including Superfresh located downtown, the Lexington Market located downtown, Safeway located east of downtown in the Canton neighborhood, and Superfresh located approximately nine miles north of downtown in Towson. One supermarket, Mars in Lutherville-Timonium, located approximately 11 miles north of downtown, was visited in Baltimore County. Food items used in this study were selected from a study performed by Chang and Myers (1999) and were slightly updated using the most recent USDA Thrifty Food Plan, which is a spending plan used as the basis of food stamp allotments (USDA, 2009). This menu is the least expensive of four menus made to meet the nutritional needs of a family of four. The food items selected were sorted into six groups for ease in price comparison (Chung and Myers, 1999) (Table 2).

Table 2.

*Food items used in price comparison study*

| <b>Group A</b> | <b>Group B</b> | <b>Group C</b> | <b>Group D</b>  | <b>Group E</b>  | <b>Group F</b> |
|----------------|----------------|----------------|-----------------|-----------------|----------------|
| Apples         | Bacon          | Orange Juice   | Tuna            | Corn Flakes     | Baby Formula   |
| Bananas        | Chicken        | Oatmeal        | Frozen Peas     | Raisin Bran     | Toothpaste     |
| Oranges        | Ground Beef    | Ketchup        | Canned Beans    | Vegetable Oil   | Tampons        |
| Tomatoes       | Ground Turkey  | Mayonnaise     | Canned Corn     | Wheat Bread     | Lemonade Mix   |
| Celery         | Milk           | Raisins        | Canned Tomatoes | Buns            |                |
| Lettuce        | Eggs           | Syrup          | White Rice      | Spaghetti       |                |
| Cabbage        | Margarine      | Peanut Butter  | Potatoes        | English Muffins |                |
| Green Pepper   | Butter         | Sugar          | Navy Beans      |                 |                |
| Carrots        | Cheese         | Bread Crumbs   | Kidney Beans    |                 |                |
| Onion          |                | Flour          |                 |                 |                |

To determine the local food environment in Athens, various methods were used. First, field observations were conducted at several different grocery stores and markets. The 15 food stores identified in the city of Athens can be placed into seven categories which are chain supermarket, chain grocery store, non-chain grocery store, corner store, specialty foods store, pharmacy, and market (Table 3). Observations from all 15 stores were noted and prices from Table 2 were recorded when that item was available. Many stores in Athens did not carry all of the items in Table 2. These observations and price comparisons allowed me to discover price disparities and food availability by store location and store type. Lastly, transportation options were evaluated in several parts of Athens.



Table 3.

*Food stores and type in Athens*

| <b>Store Name</b>      | <b>Store Type</b> | <b>Store Name</b>   | <b>Store Type</b> |
|------------------------|-------------------|---------------------|-------------------|
| Aldi                   | Chain Grocery     | Kroger Retail Store | Chain Supermarket |
| Athens Farmers Market  | Market            | New Market          | Specialty Store   |
| Bulk Food Depot        | Specialty Store   | Save-a-Lot          | Chain Grocery     |
| Busy Day Market        | Corner Store      | Seaman's Cardinal   | Non-chain Grocery |
| C&E Stores             | Non-chain Grocery | Undercover Market   | Specialty Store   |
| CVS Pharmacy Uptown    | Pharmacy          | Union Street Market | Corner Store      |
| CVS Pharmacy State St. | Pharmacy          | Walmart Supercenter | Chain Supermarket |
| Farmacy Natural Foods  | Specialty Store   |                     |                   |

To obtain information regarding challenges faced when developing a community garden, in-depth interviews were conducted with members of the managing organizations, garden managers, and long-term community gardeners. Employees of CFI and PPF assisted with land acquisition for the two gardens I studied. Their knowledge of this aspect of community gardening was greatly beneficial as this tends to be the biggest challenge when developing a community garden. Garden managers and long-term gardeners were able to comment on some of the challenges currently faced by community gardens including poor soil quality, water access, access to tools and seeds, and the actual practice of gardening. Perceptions of the gardens' contribution to food security were also collected through in-depth interviews with garden managers and long-term gardeners.

Answers to the interview questions were analyzed using descriptive codes in Baltimore and Athens to ensure no further clarification was needed (Cope, 2005). Focused and axial coding was carried out at Ohio University in Athens, Ohio beginning in September 2009 (Emerson et al., 1995; Strauss and Corbin, 1998). Determination of food security/insecurity used indicators similar to those used by the USDA and those

used by the CFS model (USDA, 2008; Winne et al., 2000). USDA indicators include self-assessment of quality, variety, and desirability of available food in addition to the quantity of adequate food available throughout the year while CFS indicators include the accessibility of quality foods, public transportation options, rates of diet-related health problems, nutrition education options, analysis of any current local food production systems, and the availability of emergency food options.

## CHAPTER 4: GROWING YOUR OWN: DEVELOPING A COMMUNITY GARDEN

Gardening is becoming popular again. As has happened so often in the past, gardening's popularity soars during periods of economic decline. This time around, food prices are rising and consumers are demanding a bigger role in the food production process; they no longer want to leave it in the hands of large agribusinesses. Citizens have become aware of issues surrounding industrialized agriculture, including food safety and environmental concerns. Consequently, there is a perceived need to develop and expand community gardens. People without space to grow their own gardens are turning to their community for help and, luckily, many urban communities have the space for gardening on vacant lots, which are becoming more abundant in many cities. All around the country, participation in community gardening is on the rise (Zimmerman, 2008). Therefore, understanding how to develop a successful community garden is increasingly important.

This chapter looks at the development of the DSMG, supported by PPF, and the WSCG, supported by CFI. First, it provides background information on both gardens and organizations. Since both community gardens were developed prior to the involvement of the current supporting organizations, this chapter examines the approaches these organizations took to aid the development of these gardens. It also focuses on challenges faced by organizations and gardeners when developing a community garden. Lastly, it provides advice from PPF, CFI, and gardeners. The following two chapters look specifically at each garden location. For each chapter, I first examine the local food environment, or the accessibility of quality foods, surrounding each garden. In these

chapters, I consider how each of these gardens has contributed to individual, household, and community food security.

### Story of the Gardens

The DSMG was established in 1988 on an alleyway, once the 1800 block of Duncan Street in the Broadway East neighborhood. The site was previously occupied by decaying row houses. When the city demolished the houses it became an illegal dumping ground. Members of a local men's organization in the community, known as the Pharaoh's Club, began cleaning up the site, and soon after, the city provided assistance (Parks and People Foundation, 2005). The initial goal of the Pharaoh's Club was to clean up the site that had become such an eyesore to the entire community. Eventually, members of the club began gardening there. One gentleman from the garden claims the garden, "Just start[ed] with flowers and plants and it wasn't organized but it was clean. That was the main goal in the beginning, just to get everything cleaned up. It took off from there." Shortly after gardening began at the DSMG, the club convinced the city of Baltimore to close the alleyway to automobile traffic and fence in the entire city block containing the garden (Parks and People Foundation, 2005).

A newly-laid pebble pathway separates the garden into two sections and an iron rod fence surrounds the entire garden. A bright green sign hangs from the fence announcing the name of the garden in bold yellow lettering while also providing a telephone number (Figure 3). The phone number belongs to the garden manager, Mr. Lewis Sharpe, who treats the garden as an enjoyable and fulfilling full-time job. The plots are on raised beds which line each side of the alleyway. Instead of individual rows

separating each plot, a string tied to two posts represents the boundary line, which allows for maximum use of garden space. Green picnic tables line the pebble pathway in addition to a table with an umbrella and some chairs. Multiple composting sites are located throughout the garden. The DSMG also provides gardeners with shovels, hoes, rakes, hoses, and other gardening supplies. Mr. Sharpe collects a \$25.00 fee from each plot owner at the beginning of the season, which is used as compensation for tilling.



*Figure 3.* Main entrance to the Duncan Street Miracle Garden (photo by author, 2009)

The garden was not always called the Duncan Street Miracle Garden. It initially was the Duncan Street Community Garden. Mr. Sharpe started gardening there a few years after it was first developed and supported the name change. He thinks of the garden as, “sort of like a Garden of Eden, I guess, a little bit of everything.” Regarding the name change, he stated:

Right now I got plants in there you won't believe. I got a pepper that 3 different peppers grow on one vine. Cabbage gets to be about 10 pounds. Cantaloupe that gets as big as 6 to 8 pound cantaloupe. That's a great big cantaloupe, you know. I'm just waiting to see, cause I got all this stuff this year and all kinds of different things. That's why we started calling it the Miracle Garden. Just a whole lot of different things that work there.

In his opinion, the garden grows so much food in so many different and unique varieties that it can only be explained as a miracle. As a result of the incredible amount of press he and the garden have recently received from the media and both governmental and non-governmental organizations in the city, Mr. Sharpe is a popular public figure in Baltimore.

In addition to providing support to the DSMG, the PPF provides many services to the city of Baltimore and its residents. Mainly, the organization seeks to connect people with the resources they need to better their community, from reclamation of vacant lots to after school and summer programs for children (Parks and People Foundation, 2010).

Most helpful to community gardens is the Community Greening Resource Network (CGRN). According to the program coordinator, CGRN is a:

Membership program supporting community gardens and green spaces in Baltimore City by providing resources like seeds, plants, tools, education in the form of workshops, networking events and a shared calendar of events and connections to other community gardens...As a network, CGRN functions as a collaborative, comprehensive and consistent framework for channeling all of

these things from individual organizations around the city to the gardeners that need them.

In order to become part of the CGRN network, community gardens must submit a short application, some photos, and pay a \$10.00 annual fee. Individual advocates, private gardens, and school gardens may also join the network. As of August 18, 2009, there were 83 member gardens, including the DSMG. The impact of CGRN on the DSMG is still undetermined since this was the first year of the program.

Prior to the establishment of CGRN, the DSMG received several grants from the PPF. Although unsure of the year, Mr. Sharpe remembers the first time the garden received a grant from the PPF, which he says was used to purchase materials to build a taller fence on one side of the garden. In 2005, with help from Civic Works, another non-profit organization in Baltimore, the PPF helped install new non-toxic wood boards to replace old railroad ties that were currently being used to build up the raised beds. The DSMG also collaborates with Baltimore Green Space, a land trust working to secure land for community gardens and pocket parks. In August, the DSMG turned in their application to Baltimore Green Space and were recently approved to become part of their land trust and secure their spot permanently.

The WSCG was also started a little over 20 years ago but its history is not as well documented as the DSMG. Two community members, who are still very active in the local food movement in Athens, were residing on the west side of town in an apartment building and wanted to start gardening. Since they did not have their own land, they chose a spot by the Hocking River which later became the WSCG. However, the garden did not take off until seven years ago when CFI began managing it. Since then, CFI has

worked to increase gardener participation, which has meant securing new land. Since the garden is located on city land, CFI requested additional space for the WSCG in spring 2009. After some negotiations, this land was granted to CFI and 35 additional plots were constructed. Many different age groups and nationalities are represented at the WSCG. Undergraduate students, graduate students, international families, university professors, and long-time Athenians are all found at the garden and offer varying insights into their individual garden knowledge. For example, one Chinese gardener built one of the first fences in the garden, and since then has offered advice on fence building to others interested in keeping out rodents.

At first sight, it does not appear that the WSCG was set-up methodically. Instead, the 95 plots are arranged randomly. Some plots, typically the older, more established plots are very large while many of the newer plots are relatively small. The plots are separated by mulch pathways, creating the appearance of a maze. Some plots are surrounded by individual fences built out of natural materials such as driftwood from the Hocking River or sticks and logs from wooded areas nearby (Figure 4). Some gardeners opt not to build fences, exposing their plots to deer and rabbits. A small red sign declaring the management of “Community Food Initiatives” is located on the north side of the garden near the water spigot and tool box (Figure 5). In addition, several three-bin compost sites are located throughout the WSCG. The plot fees vary according to the number of gardeners. Individuals and couples pay \$40.00, groups pay \$55.00 and organizations and businesses are charged \$100.00. Of that, the city collects \$5.00 from each plot to pay for the water supplied to the garden.





*Figure 4.* Fences and garden plot at West Side Community Garden (photo by author, 2009)



*Figure 5. Community Food Initiatives sign and water spigot at West Side Community Garden (photo by author, 2010)*

CFI has been managing the gardens since 2003 and has contributed to the growth of gardening in the city of Athens and in several villages located throughout Athens County. According to the previous garden manager, CFI's main goal is food security:

Food security is giving food to people if they're hungry, teaching them to grow it if they're hungry, teaching them to sell it they're hungry so they can make money. You see, so there's that economic piece in it too.

The current assistant garden manager, who sees herself more as a coordinator, is working to make the WSCG a "self-sustaining entity." She notes, "I help coordinate the gardeners and figure out different things that they want to do...and then we implement those at the gardens." This past year, CFI helped coordinate with the city of Athens to install a second

water spigot at the garden, something that was in high demand by many of the gardeners. In addition, CFI assigns plots and develops a contract that each gardener must sign. Essentially, the contracts lay out the rules of the garden. Workshops about gardening techniques and food preparation are also offered by CFI on a weekly basis during the summer. This past year, workshops included Gardening 101, Terrific Tomatoes, Companion Plants, Herbs, Demystifying Tofu, Salsa Making, and Freezing Produce.

New to the WSCG this year is a mentorship program and interest groups. The mentorship program was set up to connect experienced gardeners with new gardeners. This enables CFI to take a step back from the gardens while allowing the gardeners to enjoy greater “ownership.” To further establish ownership, all gardeners are asked to join an interest group to help accomplish various tasks around the garden, such as “developing a living fence and monitoring the gardens to improve security.” CFI has also requested that the city consider developing a policy to permanently secure the land currently being used by the WSCG and other gardens in Athens County.

### Developing a Community Garden

Cities, townships, organizations, and schools all have different ways of developing a community garden, and this gives each garden its own identity. Does one way work better than another? Are some community gardens more successful than others? I have found that in most cases, there are two different approaches used to develop a community garden, the top-down approach and the bottom-up approach. In the top-down approach, a city or organization works first to establish a community garden by developing a site and then tries to find interested community members. In the bottom-up

approach, community members who have an interest in gardening assemble and then contact the city or an organization to figure out the best way to proceed with garden development.

In Athens County, both approaches have been used by CFI. For example, several gardens were established in different ways in spring 2009 in villages and towns across the county. A top-down approach is evidenced in Chauncey, Ohio where CFI approached representatives from the village thinking its residents would benefit from a community garden because they experience high rates of food insecurity. The village welcomed CFI into their community and is excited to have a community garden available to residents. However, not all community gardens developed in this manner are successful. In an attempt to clean-up vacant lots in Cincinnati, the city offered 14 vacant lots to volunteers who offered to help with this pilot gardening study. Of those, four plots were never turned into community gardens because the city was unable to find volunteers for every plot (Prendergast, 2009). This indicates that a top-down approach may not always work.

In contrast, a resident of Nelsonville, Ohio recently contacted CFI for help in developing a community garden on property she owned. Since her previous attempt alone was unsuccessful, she asked for advice and support from CFI. According to the assistant garden manager at CFI, several steps are taken to implement new gardens. First, CFI asks that the area be completely plowed, and then a “memorandum of agreement” is drawn up between the land-owner, which is usually a village, town, or city, and CFI. This determines the responsibilities of all involved parties, including the city, managing organization, and gardeners, so there is no confusion later. Lastly, CFI works out many of

the logistical problems, such as parking, water, fences, and tools. According to most community gardening advocates, a bottom-up approach proves much more successful because community members are involved in the planning process from the beginning and therefore, have increased interest invested in the garden. The PPF in Baltimore also uses the bottom-up approach and works to provide connections to gardeners seeking vacant lots or other available space. A representative from CGRN commented:

There has to be the interest in the community and we can help facilitate that by holding trainings. But it's very important that the garden isn't started by an outside force. Because then if there's nobody in the community, then you know, you're just dropping money down a hole. And a garden, once started, if there's that initial interest and then it dies out, it could be as or more detrimental than if you hadn't touched that lot at all.

From the perspective of the PPF in Baltimore, the only way to start a community garden is through the interest of community members. However, it should be noted that many community gardens in urban areas are developed to create open space, something superfluous to rural residents, which is why CFI may sometimes take a top-down approach to development.

Other than the DSMG gardeners commenting on PPF as a good resource for grant money, seeds, and tools, they did not mention the organization much. Conversely, gardeners at the WSCG often discussed CFI, mainly because they are more directly involved in the garden. Most of the interviewees appreciated the workshops and the education offered by CFI, although one respondent wished they were offered at different times during the week instead of always on the same day at the same time. She felt this prevented some people from attending any of the workshops and added, "In a sense I feel like I'm stepping into what their idea of a community garden is." These are some things

that may change once CFI hands over more responsibility and decision making to the gardeners.

When attempting to initiate anything in a community, challenges are present and must be overcome. To successfully develop a community garden, it is important to know what challenges to expect ahead of time so an attempt can be made to solve them. First and most importantly, the benefits of a community garden must be expressed to interested parties and others in the area. One DSMG gardener, who is also an employee at the Historic East Baltimore Community Action Coalition (HEBCAC), an organization which “seeks to improve the quality of life in East Baltimore,” thinks the biggest challenge is, “just getting people on board – community people on board... and maintaining their level of enthusiasm – to keep the garden going” (HEBCAC, 2008). Community gardens should be open to the entire community; however, at first some people may not be interested for many reasons, including lack of time. It is important that everyone be made aware of how advantageous a community garden can be.

Other avoidable challenges brought up by gardeners and organizations are rodents and compost. Infestations, such as rats in urban environments and deer, rabbits, and groundhogs in rural environments, can be prevented if action is taken at the beginning of the gardening season. DSMG has had rat problems in the past so they now set aside grant money each year to hire an exterminator, which has taken care of the problem. New gardeners at WSCG are also informed by CFI of problems with deer and rabbits and are advised to use scam, a natural repellent, or to build a fence. It is also important that

gardeners are educated on the “rules” of the garden when they begin. In doing so, problems such as unmanaged compost and improper tool use, are avoided.

However, there are unavoidable challenges that every community garden will likely face. Soil and water are the two greatest issues for both urban and rural community gardens. It is important to be aware of these issues early in the development process so they are handled properly. A soil test, performed by state and county extension offices, should be carried out as soon as a garden site is selected. A representative from PPF said many gardens in Baltimore choose to build raised beds to avoid contamination from lead and other carcinogens. She also indicated that topsoil, mulch, and compost are available through CGRN and leaf mold and mulch are provided free of charge from the city. Water is equally important as soil and equally difficult to obtain. A representative from CFI identified water as a problem at both rural and urban garden locations. In urban areas, acquiring permission to use city water, determining cost, and gaining access to the water line proves difficult. In rural areas, finding a way to obtain water is the problem. In both cases, rain barrels are a viable solution. PPF holds rain barrel construction workshops and gardeners at WSCG have started installing them in the garden.

Other similar but unavoidable problems include communication and funding. Organizations sometimes need to get in touch with gardeners and gardeners must also discuss various topics amongst themselves. In both cases, lack of communication creates a problem. Since CFI is more directly involved with WSCG, communication posed a larger problem. Some gardeners said they were unclear about how to contact CFI and didn't know when to expect their presence in the garden. In addition, CFI discussed



trouble reaching people through e-mail and even by telephone in some rural areas. At DSMG, Mr. Sharpe spoke of similar problems. In cases where a gardener couldn't be reached, he would tend to their garden if vegetables needed harvesting or plots became unkempt. Effective communication is imperative, especially when making decisions about the garden. CFI mentioned the importance of communication because so many different types of people with different opinions use the WSCG.

Funding any community project proves difficult and is no different for urban and rural community gardens. Both organizations spoke of writing grants often to fund garden projects. A representative from PPF said there are two grant rounds per year while a representative from HEBCAC tries to apply for a grant quarterly to make improvements to the DSMG. Past improvements made through grants include laying down a pebble pathway, re-building the perimeter fence, hiring an exterminator, and hosting the end-of-season garden party for the entire community. Through a grant, the Sisters of St. Joseph Charitable Fund of Parkersburg, West Virginia will have donated \$50,000 to CFI from late 2009 to late 2011 to assist with general operating and programming costs. Although extremely helpful, a lot of time and effort goes into the grant writing process.

Suggestions were offered by representatives from PPF, CFI, and gardeners regarding a successful community garden. Both organizations and many gardeners suggested that immersing yourself in the experience is fundamental when developing a garden and during the gardening process. A representative from PPF stressed the importance of community, "You can't do it by yourself." To those wanting to start a garden, she said, "Just start it, and you can figure out liability or permission later." A CFI



employee stated, “Get to know your garden neighbors.” In addition, several less-experienced gardeners recommended asking experienced gardeners for assistance. One WSCG gardener commented, “I think the more experienced gardeners just thrive on that – being able to help people or tell people if they don’t know how to do something; to share that knowledge.” Many gardeners from CFI also recommended attending the workshops, regardless of experience. Lastly, “just relax,” was a recurring sentiment by one WSCG gardener:

Just do whatever you want. People think that they have to do it this way or that way, there’s lots of ways to do things so just do whatever works. I think the best way to learn how to garden is just to do it and just to gain experience.

In the beginning of the garden season, some gardeners worried about the appearance of the garden and the methods they were utilizing; however, by the end of the season, they said they had relaxed and had fun with it, which made the experience much more enjoyable. CFI suggested gardeners clearly communicate with their garden coordinator; however, this was not mentioned by PPF since they do not play a large role in the DSMG.

For additional advice on starting a community garden, PPF developed a manual, *Guide to Greening Neighborhoods*, available on their website and by contacting PPF. It discusses the planning process, community involvement, budgets, and construction. PPF also holds biannual city garden tours in Baltimore. City officials, community members, and gardeners are invited to visit selected gardens in Baltimore to promote education and provide opportunities to meet other gardeners. They hope this encourages other communities to start gardening.

## Conclusion

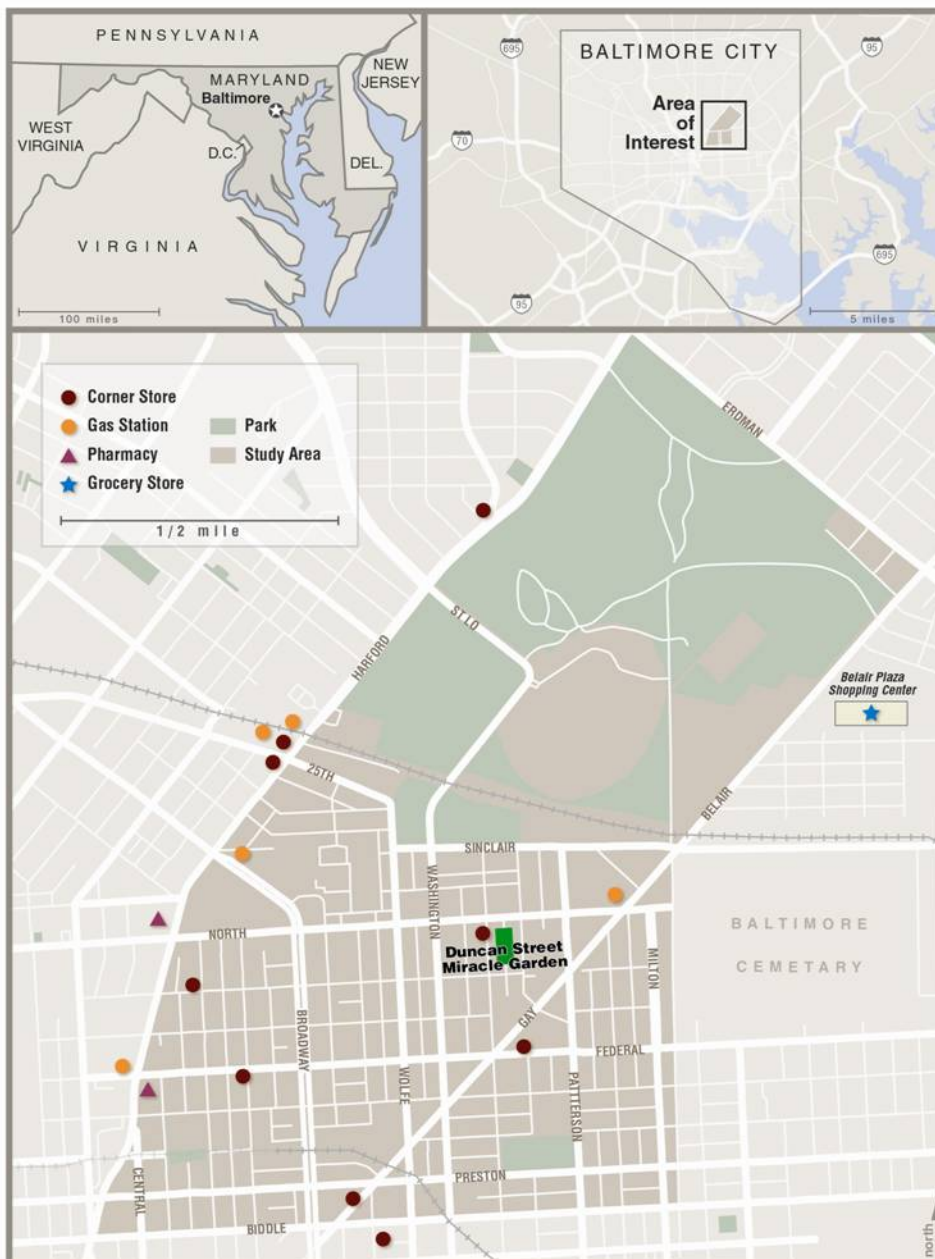
Both established about 20 years ago through a bottom-up approach by community members, the DSMG and WSCG are supported differently today. CFI plays a larger role in coordinating the WSCG than PPF does in the DSMG. Those wanting to garden at WSCG contact CFI while those at DSMG get in touch with Mr. Sharpe, a gardener at DSMG. Both styles of support have proven successful as both gardens are growing in popularity and number of gardeners each year. Both gardens are also receiving additional funding each year for improvements. PPF suggests the development of all community gardens through a bottom-up approach while CFI occasionally utilizes a top-down approach.

Since CFI works in Athens City and Athens County, which is rural, they may need to take a different approach by seeking out community members to garden. Many residents in Athens County have not yet realized the benefits of community gardening and therefore have not approached their village or county about starting a community garden. In addition, many urban community gardens are started to create open space, something which does not concern most rural residents. If CFI had not approached these places, several community gardens would not exist. Over time, it will be apparent whether or not this approach to development worked. The next two chapters will examine how these two gardens, which appear very different, contribute to individual, household, and community food security.

## CHAPTER 5: GROWING COMMUNITY: LOCAL FOOD ENVIRONMENT OF THE DUNCAN STREET MIRACLE GARDEN

### Ability to Purchase Quality Food

To meet the needs of local residents, stores offering quality food at affordable prices must be readily available. In the Broadway East neighborhood, which relies heavily on public transportation, it is important that stores are located within walking distance. After driving the streets and identifying the different types of food stores available, I developed a typology and created a map for the Broadway East neighborhood (Figure 6). The most common store type in the study area is corner store, followed by gas station. Pharmacy and supermarket make up the remainder of the store types in the study area.



*Figure 6.* Location of food stores and the Duncan Street Miracle Garden in the Broadway East neighborhood, Baltimore (Mike Boruta, 2010)

Food available at the corner stores is usually more expensive than food at supermarkets and includes boxed and canned foods and an abundance of potato chips,

candy, and sugary beverages. If produce is available, it usually includes oranges, apples, or overripe bananas, but not vegetables. Similar to liquor stores, some corner stores separate the customer from the store attendant with a plexiglass wall which means customers are unable to look closely at the food they purchase. The gas stations range in size and snack foods such as chips, cookies, and crackers in addition to a variety of sugary beverages are available. The two pharmacies, located at large intersections, sold boxed and canned foods in addition to some frozen foods. They also sold snacks and sugary beverages near the check-out counters. The food prices at the pharmacies are slightly higher than those at supermarkets. Several bars and restaurants are also located in the study area. They are typically located on the corner of two streets, and are small, non-chain establishments. Most of them do not have a sign displaying the store name and many of them do not offer food at all. Liquor/package stores, also in abundance, are also small, usually unnamed, and do not sell food. The three fast food restaurants are clustered at one large intersection.

Food Depot, located in the Belair Plaza Shopping Center, is the only supermarket in the study area. It is approximately one mile northeast of the center of the study area on Belair Road. This supermarket has a warehouse feel but is clean, offers restrooms to its customers, and employs a friendly staff. The produce selection offers a wide variety of fruits and vegetables that appear very fresh. The meat department also offers a wide selection of beef, chicken, turkey, and pork in a variety of cuts and brands. There is a large fish department specializing in fish heads, which are fresh fish with the head still

attached. This fish is typically less expensive than fresh fish filets. Food Depot also offers a wide variety of cheeses, breads, canned and boxed food, and toiletries.

In addition, Food Depot offers very low prices. Prices were compared to five other supermarkets in Baltimore City and Baltimore County. Almost half – 24 items out of 50 – were lower at Food Depot than any other store (Appendix 1)<sup>2</sup>. Only seven items were more expensive at Food Depot. These include carrots, boneless skinless chicken breasts, orange juice, frozen peas, canned tomatoes, white rice, and lemonade mix. These foods were higher in price than at least three other supermarkets used in the comparison study. However, the boneless skinless chicken breasts and white rice were comparable to other downtown supermarket prices. The frozen peas were difficult to compare because every store offered a different package size and thus the prices had to be adjusted.

Unlike other studies comparing supermarket prices, Food Depot, located in a low-income and predominately African American community, offers some of the lowest prices in the city. Because of greater purchasing power, supermarkets are generally able to offer lower prices than corner stores. In areas where there are no large supermarkets, corner stores may exploit their customers by charging higher prices simply because these owners know their consumers have few options. B. Green Wholesale is a family owned and operated wholesale food company serving the state of Maryland. In addition to providing retailers with wholesale prices, B. Green Wholesale operates two Food Depot locations in the Baltimore area. This may afford Food Depot lower prices than some other supermarkets (B. Green Wholesale, 2009). However, it still does not explain why

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<sup>2</sup> Prices were determined through store visits conducted October 19 – October 22, 2009.

Food Depot offers lower prices than other chain stores used in the study, such as Safeway and Superfresh.

To determine the ability of residents in the Broadway East neighborhood to purchase food, household income and food stamp allotments should also be evaluated. However, the purpose of this study was to determine the *availability* of quality food in a particular community. These results indicate that healthy and affordable foods are available at Food Depot, but corner stores are more convenient for most community members because of their proximity to residents and because they are diffused throughout the neighborhood. The ability of residents to obtain quality food must also be evaluated before determining if a food desert exists in the Broadway East neighborhood.

#### Ability to Obtain Quality Food

While quality food may exist in a particular place, it may not be manageable for all members of a community to access it for several reasons, including lack of reliable transportation. After speaking with several gardeners from the DSMG, it became apparent that transportation figured prominently in determining where to shop. One gardener commented, "...you go to the nearest store," which indicates people patronize corner stores because of their convenient location. Since almost half of Broadway East residents rely on public transportation, bus routes from the Broadway East neighborhood to Food Depot, where lower prices are offered, were evaluated.

Three bus routes offered through the Maryland Transit Administration transport residents from the Broadway East neighborhood to Food Depot on Belair Road. The first, Route 15, runs north on Broadway Avenue, then turns right on Gay Street which turns

into Belair Road, running northeast past the Belair Plaza Shopping Center. Residents living near Gay Street/Belair Road have the greatest access to a bus serving Food Depot. Route 13 runs along North Avenue and therefore serves residents living along or near North Avenue. To access Food Depot, residents need to exit at the corner of North Avenue and Patterson Park Avenue and walk a little over one-half mile northeast on Belair Road. The last bus, Route 22, runs north along Edison Highway and turns left, heading northwest on Erdman Avenue. Most residents of the Broadway East neighborhood would need to walk approximately one-half mile east to access Route 22 and then one-third of a mile south from the corner of Belair Road and Erdman Avenue to access Food Depot (Maryland Transit Administration, 2009) (see Figure 6 for street reference).

Bus schedules and fares also need to be considered as they determine the efficiency and affordability of public transportation options for residents. Food Depot is open from 9:00 a.m. – 9:00 p.m. Monday through Saturday and 9:00 a.m. – 7:00 p.m. on Sunday. Working community members are most likely to visit grocery stores after usual business hours or on weekends. Therefore, peak hours (9:00 a.m. – 8:00 p.m.), after peak hours (8:00 p.m. – 10:00 p.m.), and weekend hours were evaluated (Table 4). Table 4 indicates Route 15 offers the best service as it runs most often during peak hours, after peak hours, and weekends. Route 13 only provides service to the corner of North Avenue and Patterson Park Avenue during peak hours and from 11:30 a.m. – 3:30 p.m. on Saturdays, which is not very convenient for working residents. Route 22 is also an option for residents living on the east side of the study area as it runs often every day of the



week. The Maryland Transit Administration charges \$1.60 each way for regular customers and \$0.55 for seniors and persons with disabilities. Since transfers are not available on local buses in Baltimore, a \$3.50 day pass for regular customers and \$1.20 day pass for seniors and persons with disabilities is recommended by the Maryland Transit Administration. Special discounts are available for students K-12 during school hours. Discounts are also offered on monthly passes; however, it is usually difficult for low-income residents to purchase monthly passes because they need to be paid in advance (Maryland Transit Administration, 2009).

Table 4.

*Availability of three bus routes serving Broadway East (Maryland Transit Administration, 2009)*

| <b>Time</b>      | <b>Weekday Peak</b>                       | <b>Weekday After Peak</b>                  | <b>Saturday</b>                                | <b>Sunday</b>                |
|------------------|---|--|--|------------------------------|
| <b>Bus Route</b> | 9 a.m. – 8 p.m.<br>unless otherwise noted | 8 p.m. – 10 p.m.<br>unless otherwise noted | 9 a.m. – 9 p.m.                                | 9 a.m. – 7 p.m.              |
| Route 15         | 15 minutes                                | 20 minutes                                 | 15-20 minutes                                  | 30 minutes                   |
| Route 13         | 30 minutes<br>(until 6:20 p.m.)           | Not available                              | 30 minutes<br>(11:30 a.m. – 3:30 p.m.<br>only) | Not available                |
| Route 22         | 15 minutes                                | 25 minutes                                 | 20 minutes<br>(until 7 p.m.)                   | 30 minutes<br>(until 7 p.m.) |

Traveling to the grocery store on a city bus is not always a stress-free experience, especially for single mothers, the elderly, and persons with disabilities. Unless a caring friend or family member is available for babysitting on shopping day, single mothers must either take their children to the supermarket, which usually leads to additional unhealthy food purchases, or pay for childcare. Seniors and persons with disabilities are

burdened with carrying groceries while utilizing the bus. Since carrying large quantities of groceries proves difficult for these groups of people, they often choose not to purchase in bulk, which typically produces the most cost savings at a grocery store. “Hacking,” another option identified by the DSMG gardeners, is a form of unregulated and illegal taxi service. Unidentified cars transport grocery shoppers from their homes to the supermarket and back for a fee, which is usually less expensive than regulated taxis. While this allows customers to purchase larger quantities of food, it also facilitates additional spending on transportation to the store.

Interviews with gardeners at the DSMG reveal that residents of the Broadway East neighborhood shop at corner stores and Food Depot and listed benefits of both. Regarding corner stores, one African American male gardener in his sixties stated, “They might not have a big variety of food like you do at the supermarket.” Another gardener acknowledged, “...you’re gonna have to drive to the supermarket or take the transit bus or whatever. If you ain’t got the transit, if you don’t drive, you got to take the bus or something.” While one gardener identified a benefit of the supermarket as offering variety, another gardener admitted that he thought the price “evened out” if you had to take public transportation to access the supermarket versus using a corner store with less variety. The four DSMG gardeners, who are all African American males between the ages of 55 and 70 living in the Broadway East neighborhood, declared they shopped at Food Depot rather than corner stores because of the larger variety of goods. In addition, they all stated that they rarely purchase produce from the supermarket because as one gardener said, “99% of my vegetables come from the garden.”

Another option available to Broadway East residents is a new service, the Virtual Supermarket, located at HEBCAC at 1212 North Wolfe Street. The Virtual Supermarket program is funded by the Baltimore City Department of Health. A second location is located at the Faith Center on the west side of Baltimore. Shoppers go into HEBCAC on Thursdays between 5:00 p.m. and 7:00 p.m. and order all of the grocery items they need, from fresh strawberries to toilet paper and other essentials. Employees of the Department of Health then do the shopping and drop the items back off at HEBCAC for shoppers to pick up the following Sunday from 1:00 p.m. to 2:00 p.m. Patrons are able to use debit cards, credit cards, food assistance, and cash. The Virtual Supermarket is advertised as an easy and affordable solution for obtaining quality foods in low-income communities dominated by high-priced corner stores. HEBCAC is located approximately one-half mile south of the DSMG, making it easily accessible to most residents in the Broadway East neighborhood. This program was implemented in July 2009 so the immediate benefits are still being evaluated.

These results indicate that while a supermarket is located within a mile of Broadway East residents, many must take public transportation to get there. While the convenience of corner stores is attractive to many residents, the higher prices and limited variety promote unhealthy eating. Residents with cars are afforded the privilege of shopping at Food Depot, which offers some of the lowest prices in Baltimore. However, those relying on public transportation might not find the trip to Food Depot worth the hassle for greater variety and lower prices. The Virtual Supermarket may also make obtaining quality food easier and less expensive for Broadway East residents. The four

DSMG gardeners residing in the Broadway East neighborhood choose to shop at Food Depot instead of corner stores, which could be attributable to greater food knowledge from their extensive gardening experience.

#### Contributions of the Duncan Street Miracle Garden

The DSMG contains individual plots which consist of peppers, tomatoes, collards, mustard greens, lettuce, kale, cabbage, onions, Swiss chard, squash, okra, cucumbers, pumpkins and beans, among many other vegetables and herbs. There are also several plots dedicated to fruit in the garden, including a blueberry patch, a grapevine, a melon patch, and a strawberry patch. The fruit plots are mainly tended by Mr. Sharpe with help from three long-time gardeners. Surplus food from the garden is donated to a variety of places, including two local churches that manage soup kitchens and other community associations, such as HEBCAC.

Interview responses from three older African American male gardeners highlight the various reasons they garden and what they see as the direct benefits of community gardening. Gardening provides the gentlemen with “something to do” as well as an activity that is “very relaxing.” “You go in the garden with something on my mind,” comments one gardener, “and I come out and I forgot what it was,” a sentiment shared by others. A female gardener came upon the DSMG through work and was “fascinated by all the vegetables.” She was urged to start gardening by Mr. Sharpe, who taught her many things about gardening, especially what vegetables to plant and when to plant them. She then went on to convince her family members and two friends to obtain plots at the DSMG and stated, “It’s been kind of contagious!”

A major benefit of the garden, identified by all of the gardeners, is knowledge. It became apparent that the garden was divided, not only by the obvious East-West divide of the pebble pathway, but also the North-South divide of experience. The south end of the garden is tended by the very experienced male gardeners. These four men trace their garden knowledge to their childhoods. Several of them grew up gardening in rural Virginia and North Carolina. Another gardened in containers in his backyard until he heard about the DSMG. Since he had only grown out of containers and needed to learn how to tend a plot, he stated:

I got on my bike and just rode around the city to different gardens and got different ideas. See I was born and raised in East Baltimore and if you grow something and it grows better than mine, I want to know what you did! Everything I've learned, I learned from watching and listening.

When these gardeners moved to Baltimore, they wanted to continue gardening, which proved a problem for most of them. After finding the DSMG, they were able to continue a long-time family tradition. The newer and less experienced gardeners tend plots on the north end of the garden. Many have only been gardening for a year or two and have learned most of what they know from Mr. Sharpe and the more experienced gardeners. Friendly competition is evident as you talk with the gardeners. As one gardener stated, “We don't try and out do, we don't run competition, but he has a good garden (points to a fellow gardener), he has a great garden (points to another gardener).” All of the gardeners were complimentary of one another and their plots.

In an area dominated by corner stores, offering limited fresh food or affordable prices, a community garden may provide an opportunity to increase knowledge of quality food and possibly even food security. After conducting interviews with several gardeners

at the DSMG, it became apparent that the garden does indeed make people more aware of their involvement with food systems and issues of food security in the Broadway East neighborhood and beyond. One gardener noted, “A lot of people benefit and not only us that grow the stuff but people that we give it to, you see, they benefit.” Increased individual food security was demonstrated by all of the gardeners. Another gardener exclaimed, “I probably haven’t been to the market in over five years. If you could only grow bread!” This statement then started a discussion on growing staple crops in order to make their own bread. When asked about purchasing vegetables, a younger African American female gardener who does not live in the Broadway East neighborhood responded:

See I actually get upset in the wintertime because I have to buy cucumbers and it’s a big difference between going out in the garden, picking it – such a big difference. And tomatoes, I get upset when I have to buy tomatoes and cucumbers.

All of the gardeners interviewed expressed the same sentiment and weren’t interested in purchasing produce from grocery stores since beginning gardening. They believed the quality of their food was much better than what stores offered because “...you know what you grow.” Several gardeners pronounced their distrust of chemicals and therefore, produce purchased in grocery stores. They also noted how delicious food from their garden was, specifically cucumbers, tomatoes, and string beans. Friends receiving donations from the gardeners commented on how good the fresh food tasted and always asked when they’d be receiving more.

The garden also improves household food security as one gardener commented on his ability to share produce with his large family. A female gardener living outside the

study area gardens with her husband, two children, and a niece and nephew. She discussed education as a major benefit of the garden:

My kids are learning. They're actually appreciating how things grow. Even just to see them, I mean, they like to plant, but when they actually see stuff, that's a different feeling for them. When they get to actually pick, they really enjoy that.

However, she admitted it's still taking some time to get her children accustomed to eating all of the vegetables grown in the garden, such as Swiss chard. Lastly, household food security is improved by the DSMG because most of the gardeners practice food preservation techniques. Freezing was the most popular technique brought up during the interviews. Many of the gardeners said they still had produce in the freezer from last summer, which enabled them to avoid purchasing produce during the non-growing season. However, Mr. Sharpe expressed a desire to obtain canning equipment and education because, "...some of the stuff you can't really freeze – like squash." He also identified a lack of freezer space as a problem, which could be solved with canning equipment.

Donating produce and giving back to the community was the most common theme brought up during the interviews. Although no donation policy exists at the DSMG, an enormous amount of food is donated because an enormous amount of food is grown and as one gardener notes, "You can give a lot of food away, there's a lot of hungry people out there. Nobody can eat all the food in their own garden. It's a big garden." Various organizations and people benefit from DSMG donations. It is up to each gardener where they donate their excess produce. One gardener favors senior citizens:

Oh my goodness! You know the ones that can't hardly walk to the market. They ask for vegetables and you pull a whole head of cabbage up – still have the roots on it sometimes...

Several other gardeners donate to churches housing soup kitchens, including the Rising Zion Baptist Church and the Rising Sun Baptist Church. Another gardener donates to community centers, such as HEBCAC, which employs local community members. Neighborhood children also know they are able to stop by the garden anytime to pick fruit. One boy around the age of five was observed picking blackberries, filling a large plastic container that Mr. Sharpe had given him. The boy then picked a peach and proclaimed, "Good for my body!" before taking a bite. In addition, Mr. Sharpe has intentionally planted pole beans around the fence line, allowing community members to pick them at their leisure.

Although the number of gardeners at the DSMG is relatively small, it has influenced the surrounding Broadway East neighborhood and the entire city of Baltimore. Mr. Sharpe strives to have one of the most beautiful gardens in Baltimore and therefore, needs to maintain the garden constantly to keep it free of weeds and as productive as possible. Some of the newer and younger gardeners are sometimes unable to make it to the garden as frequently as they would like. Mr. Sharpe also accepts help in the garden from other local community members who do not have plots at DSMG. He stated...

I try and find something to give her to do and give her a few dollars worth, so, like I said, I don't gain, not making anything, but she's a big help. So, I don't mind giving her a few dollars to help out, you know.

The garden also provides a green oasis in the heart of East Baltimore, an area plagued by vacant lots and boarded-up homes (Figure 7). The DSMG has been recognized by several organizations, including the Baltimore Ravens All Community Team Foundation, the



Baltimore Harbor Watershed Association, and the Parks and People Foundation Neighborhood Greening Grant. Its recognition has influenced other communities around the city to take action in greening their neighborhoods. Lastly, the gardeners at the DSMG hold an annual garden party at the end of the season. Invitations are sent out to members of the community, City Council representatives, and other city officials (Figure 8). The garden is opened to the entire community and refreshments and snacks are served. The party offers the neighborhood a glimpse of what goes on in the garden and hopefully generates gardening interest in other community members.



*Figure 7.* Duncan Street Miracle Garden interior (photo by author, 2009)

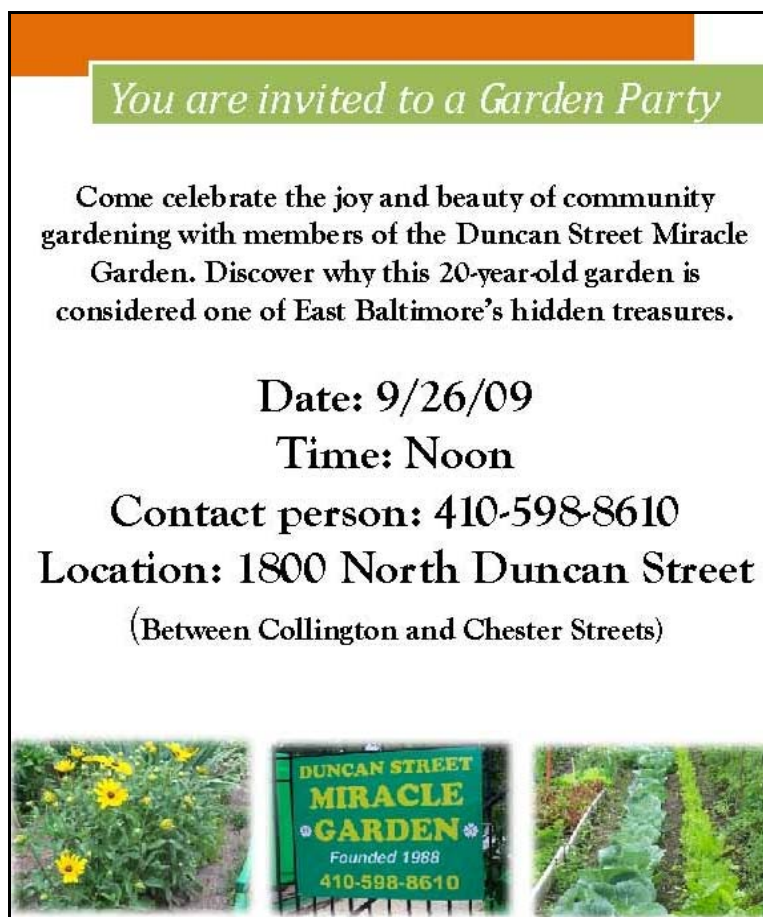


Figure 8. Garden Party Invitation (Anita Hammerer, 2009)

There are, however, some drawbacks to community gardening. For instance, Mr. Sharpe is unsure of the savings associated with gardening because he purchases seeds every year and thinks, "...you're not even breaking even on the garden, you just have fresh stuff and you know what you're getting." He did indicate that he experiments with new products every year and this contributes to the large amount of money he spends on seeds. The other gardeners did think they were saving money by growing their own food. Regarding the idea of selling excess produce from the DSMG to raise money, Mr. Sharpe

replied, “I ain’t a risk guy.” He felt “blessed” to be healthy and couldn’t imagine selling his produce to a senior citizen or anyone else unable to grow their own food.

While the DSMG provides individual, household, and community food security, improvements could still be made. Food security involves the procurement of nutritious food, which the garden clearly provides. However, the abundance of unhealthy food sets the community back. Many of the gardeners view the DSMG as a way of life and something to occupy their time with fresh food being an additional bonus. Fatty foods, such as potato chips and sugary beverages, such as soda are often found at the garden and served at the garden party. The way in which food security is viewed in this garden was very different from the WSCG gardeners’ responses in Athens, which is detailed in the next chapter. To truly achieve food security in the Broadway East neighborhood, education on the risks of eating unhealthy foods should be made available.

### Conclusion

Several conclusions are drawn in this chapter. From gathering data on the types of food stores in the study area, the prices offered at the stores, and the transportation options available, a food desert, defined here as “places where people do not have easy access to healthy, fresh foods, particularly if they are poor and have limited mobility,” does exist in the Broadway East neighborhood (Furey et al., 2001, p. 1). Since 42% of Broadway East residents live below the poverty level and the median household income in 2007 was about \$22,000, many residents probably rely on corner stores for a majority of their food purchases because they are conveniently located throughout the neighborhood. Because corner stores offer a limited variety of fresh food and charge high

prices for staple foods, an issue of injustice exists. Residents without reliable transportation options must pay additional funds for transportation and childcare, or shop at corner stores. While Food Depot offers a wide variety of affordable foods, it proves difficult for many members in this community to access the store.

However, the DSMG has helped alleviate some of these problems. A constant supply of fresh fruits and vegetables enhances the gardeners' food security. The community, in turn, experiences increased food security since most gardeners donate over 50% of their produce back to the neighborhood. The garden has become a place that welcomes community members wanting to eat fresh produce and has even allowed easy access through intentional planting. The DSMG proves a successful model in a low-income and predominately African American community. The city of Baltimore boasts several organizations, such as the Parks and People Foundation and HEBCAC, designed to help other communities start gardens. However, before a garden becomes successful, an interested and active community is needed. Education on the importance of healthy eating should also be provided throughout the community.

The DSMG cannot alone alleviate all the stresses associated with food insecurity in the Broadway East neighborhood. More help is needed in the form of education on quality food, the addition of food policy councils, and increased financial assistance to help promote more gardens and other approaches to community food security. Education on quality foods will enable community members to make conscious decisions about the food they eat and possibly discourage corner store shopping. Policy could also be put into place to discourage corner stores from selling unhealthy and non-nutritious foods. The

establishment of food policy councils would aid in citywide regulation on quality food and work to reduce the stress of food deserts. Other community food security approaches, such as microprocessing enterprises, which aid in the production of staple foods, would further promote food security in the neighborhood. While the DSMG greatly improves food security in the Broadway East neighborhood, adding education, policy, and financial assistance would extend food security to a broader population.

## CHAPTER 6: GROWING CONSCIOUSNESS: LOCAL FOOD ENVIRONMENT OF THE WEST SIDE COMMUNITY GARDEN

### Local Food Environment

The local food environment of the city of Athens is much different from that of the Broadway East neighborhood in Baltimore. In contrast to the area surrounding the DSMG, which is dominated by corner stores, residents in the vicinity of the WSCG have a high degree of access to local agricultural products, including local fruits, vegetables, meats, and dairy products. Many of these local products are sold at specialty stores throughout the city and at the Athens Farmers Market (AFM). Several grocery stores, which are mainly located in a cluster on the far east side of the city, offer a large variety of items at various prices. Two other grocery stores are located on the south side and west side of town. There are two pharmacies located in Athens that carry a limited number of essential food items. One is centrally located Uptown and another on the far east side of the city. There are also two corner stores in Athens, one located Uptown and the other on the near east side (Figure 9). Interviews with gardeners at the WSCG indicate that residents of Athens shop at Aldi, AFM, Farmacy Natural Foods, Kroger, Seamen's Cardinal Supermarket, Undercover Market, and Walmart, with the majority of gardeners shopping at AFM and Kroger.

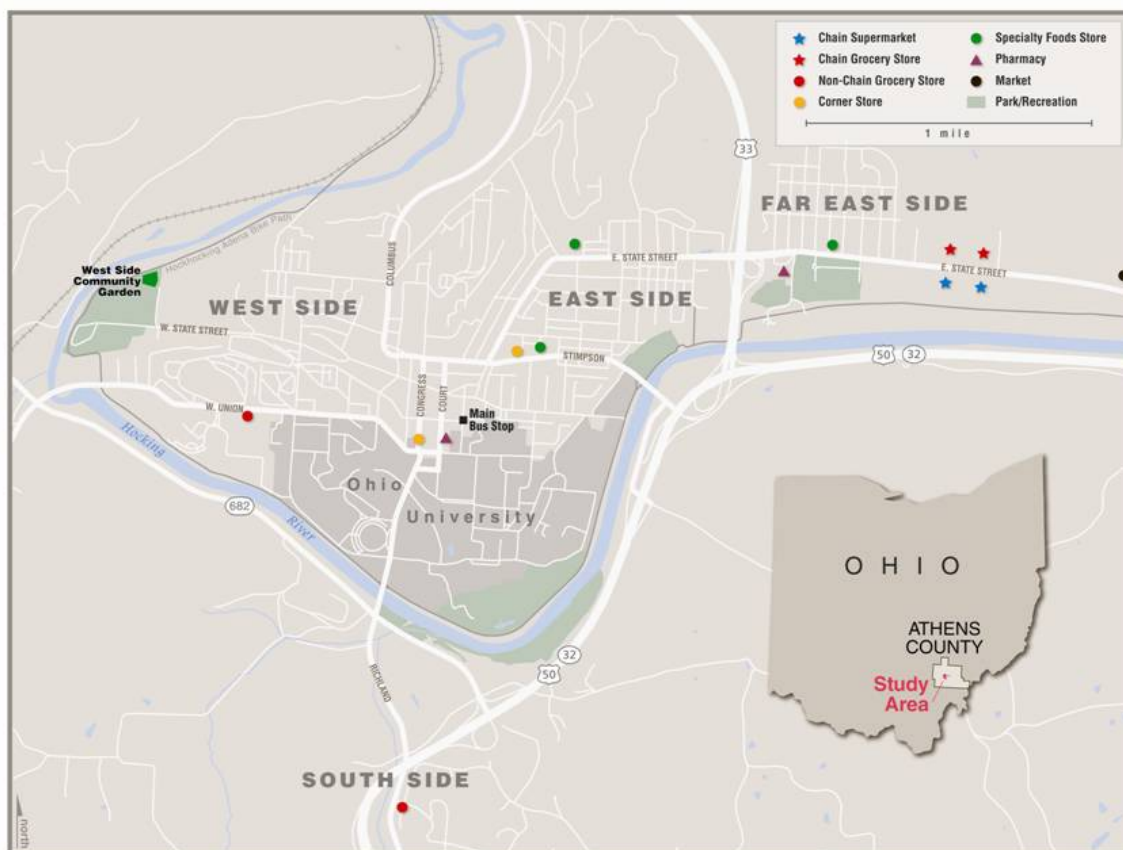
There are three specialty stores in Athens including Farmacy Natural Foods, New Market, and Undercover Market. Farmacy Natural Foods and Undercover Market are located on the east side of Athens while New Market is located on the far east side of the city. Despite its small size, Farmacy Natural Foods carries a large selection of organic

produce, dairy, meats, staple foods, and toiletries. Local produce, cheeses, milk, and meats are available at Farmacy Natural Foods. Undercover Market is located in a bakery and carries local produce, meats, and cheeses in addition to non-local organic and “sustainable” products such as jellies, coffee, pasta, rice, and flour. New Market is a store specializing mainly in Asian grocery items and also some Italian items. Farmacy Natural Foods and New Market accept food assistance while Undercover Market does not. While prices at the three specialty stores are generally higher than the grocery stores located in Athens, they are comparable to each other (Appendix 2).<sup>3</sup> Local goods are typically higher in price than non-local items.

The AFM is located on the far east side of the city at The Market on State shopping plaza. The AFM opened for business in 1972 with three local vendors about one mile west of its current location. The original mission of the AFM was to connect consumers with producers and, therefore, only producers themselves were permitted to sell. In 1998, the AFM moved to its current location and now boasts over 50 vendors on many Saturdays throughout the summer. The AFM currently operates every Saturday from 10:00 am to 1:00 pm and Wednesdays from April through December from 10:00 am to 1:00 pm (Gutknecht & Millar, 2007). Fresh fruits and vegetables, locally raised chicken, beef, and pork products, freshly baked breads, locally produced eggs and cheeses, fresh cut flowers, homemade jelly, locally harvested honey, and even homemade organic dog biscuits are found at the AFM. Interviews with gardeners at the WSCG indicate that they view the AFM as the only other place in town to obtain “food you know.”

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<sup>3</sup> Prices were determined through store visits conducted March 1 – March 5, 2010.



*Figure 9.* Location of food stores and the West Side Community Garden in Athens (Mike Boruta, 2010)

Also unique to the AFM is the Donation Station, a fresh food distribution operation and venture of CFI. In 2008, the first year of operation, the Donation Station collected 30,000 pounds of food which was distributed to 28 local social service agencies and nine county food pantries (Community Food Initiatives, 2009). Fresh food collected by the Donation Station at AFM comes from four sources. The first is from vendors of the market who donate surplus food at the end of each market session. This is where a majority of produce comes from as farmers often possess surplus food. The second method of donation is from customers at the market. AFM customers either donate \$2.00



to the Donation Station volunteers and produce is then purchased from the market vendors or customers purchase produce from a market vendor and donate it to the Donation Station. The third source is food donated from gardeners at the WSCG. The last is from “Plant a Row,” an initiative started by CFI in Athens. “Plant a Row” asks that backyard gardeners plant an extra row in their garden to donate. Since so much extra produce is being purchased at AFM, approximately \$20,000 was added to their 2008 annual income (Community Food Initiatives, 2009).

A volunteer from the Donation Station identifies four social service agencies and pantries who repeatedly receive the fresh produce on a weekly basis. However, there exists a list of over 28 participants who may request a delivery at any time. It is the responsibility of the social service agencies and pantries to distribute the fresh food to populations in need. Although a very organized transportation route exists, there are challenges, including the speed at which food must be delivered and also the speed at which social service agencies and pantries distribute the food. A “poundage report” measured down to the nearest ½ pound is also maintained and includes the method in which the food was collected and where it was distributed.

Six grocery stores/supermarkets are located in the city of Athens. Aldi, Kroger, Save-A-Lot, and Walmart are located on the far east side of Athens on East State Street, approximately two miles from the center of the city. C&E Grocery is located on Richland Avenue, a little over a mile south of the center of Athens while Seaman’s Cardinal Super Market is located on West Union Street, a little under a mile from the city center. While all six grocery stores carry an assortment of produce, Kroger offers the largest selection

while Save-A-Lot offers the lowest prices on most produce items. Most stores offer a large variety of meats, including lean meats. Prices are usually lowest at Aldi and Save-A-Lot and highest at C&E and Seaman's Cardinal Super Market. Kroger houses a large organic section and an aisle of items locally produced in Ohio. Aldi and Save-A-Lot carry very few organic products while Walmart carries some. C&E Grocery carries some organic and local products while Seaman's Cardinal Super Market offers a large selection of local and organic products, especially considering its small size.

Neither the CVS Pharmacy on East State Street nor the CVS Pharmacy on South Court Street offers fresh produce or meats. The Uptown location offers more staple food items than the East State Street location, most likely because of the large student population residing in the central part of the city. While products were usually more expensive at both CVS locations than at grocery stores, their convenient locations provide quick access to food items, especially at the Uptown location. Lastly, two corner stores serve the Athens population, the Union Street Market, located on West Union Street in the Uptown district and the Busy Day Market, located on West Stimson Avenue on the east side of the city. Busy Day Market offers a small selection of produce, including celery, romaine and iceberg lettuce, carrots, onions, and potatoes. The Union Street Market does not have any fresh produce available. Neither corner store carries meats, but both carry milk, eggs, and cheese. The Busy Day Market carries some organic and local products. Prices at the corner stores are higher than the grocery stores and comparable to the pharmacies.

Athens is approximately ten times smaller in land area than the city of Baltimore. The bus system in Athens is also much smaller and less complicated than the bus system in Baltimore. There are three bus routes operating in Athens – the Richland Avenue route, the East State Street route, and the Plains route. The Richland Avenue route begins at the intersection of Andover Drive and continues on Richland Avenue onto Ohio University’s campus and ends at the main bus stop on the corner of East Washington Street and South College Street in the Uptown district (labeled as “MBS” on Figure 5). The Richland Avenue Route departs from the main bus stop once every hour. The East State Street route also departs from the main bus stop once an hour and runs east on Mill Street, turning left on Palmer Street, right on Stimson Avenue and eventually heading north to East State Street. The bus then stops at the Athens Community Center, Kroger, Wal-Mart, and the Holzer Clinic. The Plains route also departs the main bus stop every hour and heads west on West State Street before heading out of town on Columbus Road. The bus follows SR-682 south and turns left on West Union Street before looping back to the main bus stop. In order for residents residing on the Richland Avenue route and the Plains route to access the larger grocery stores offering lower prices (assuming they do not own or choose not to drive a private vehicle), they must transfer to the East State Street route at the main bus stop (Athens Transit, 2010a).

All three routes run from 7:05 a.m. to 6:50 p.m. Monday through Friday. Additionally, the Richland Avenue route and the East State route run on Saturdays from 9:05 a.m. through 4:50 p.m. None of the routes operate on Sundays. The Athens Transit charges a one-way fare of \$1.50 for adults and \$0.75 for persons over the age of 65 and

persons with disabilities. Since all of the buses depart the main bus stop at the same time, you are able to transfer from one route to another at no additional charge. 30-ride passes are available to adults for \$25.00 and to the elderly and persons with disabilities for \$12.00. 90-day unlimited passes cost adults \$60.00 and the elderly and persons with disabilities \$30.00. One-year passes are also available for \$160.00 for adults, \$80.00 for the elderly and persons with disabilities and \$25.00 for youth under the age of 17 (Athens, Transit, 2010b).

Although East State Street, where the majority of major grocery stores and supermarkets are located, accommodates automobile traffic, it is also accessible by bicycle via the HockHocking Adena Bikeway, which runs the length of East State Street. The bike path has several entrance and exit points along East State Street and bike racks are available at many stores located along it. The bike path runs almost 18 miles northwest to Nelsonville, Ohio along the Hocking River. The bike path serves many residents of Athens as it weaves around the west, south, and east sides of the city (Hockhocking Adena Bikeway, 2009). The bike path allows for an alternative mode of transportation, especially to the lower-priced supermarkets on the far east side of the city.

The local food environment in Athens provides several places for residents to purchase food, including grocery stores, supermarkets, specialty stores, and a farmers' market. While the least expensive stores are located on the far east side of Athens, food options are available throughout the entire city. The city bus service and bike path also make these stores readily available to people without a personal vehicle. However, those residing outside city limits do not have the same access as those living in the city for two

reasons. First, the public transportation option does not serve those living in rural areas and second, there are very few grocery stores located outside the city, meaning many rural residents must travel into Athens to purchase low-cost quality food. While the scope of this paper was to examine the local food environment within the city of Athens, further assessments performed outside the city would benefit many rural residents.

### Contributions of the West Side Community Garden

A variety of vegetables are grown at the WSCG, including carrots, zucchini, yellow crookneck squash, spinach, green beans, lima beans, peppers, tomatoes, potatoes, onions, pumpkins, cucumbers, broccoli, kale, arugula, Swiss chard, beets, butternut squash, cabbage, Brussels sprouts, and turnips. Medicinal and cooking herbs such as lavender, oregano, Echinacea, sage, cilantro, and parsley are also grown at the WSCG. In addition, gardeners grow strawberries, cantaloupe, watermelon, sunflowers, marigolds, zinnias, cannas, and dahlias. Also located here is the Living Fence, a small blueberry memorial patch where remembered loved ones are honored. Some gardeners can be found tending their gardens at the WSCG as early as March and as late as November and many practice successive planting, in which gardeners plant one crop as soon as one is finished, which ensures a more productive garden.

The WSCG gardeners identify several reasons why they choose to garden in a communal environment and why this environment is important to them. Many of the reasons are quite different than those expressed by the DSMG gardeners. Beyond food security, which is discussed in detail below, another direct benefit to the gardeners is developing friendships, especially with other gardeners who have similar interests. One

younger gardener felt “a sense of camaraderie” at the garden and developed a friendship with a long-time gardener. She revealed that her favorite gardening experience was talking to her gardening neighbor while they tended their gardens. An older couple also commented on friendships and said they like talking with their neighbors, who have similar interests to them. Aside from providing an opportunity to meet new friends, one female gardener discussed the physical and mental health benefits associated with gardening. She asserted:

You’re getting physical exercise; you’re out in the fresh air. It’s mentally healthy as well. You, at least I, feel connected to nature and the cycles of nature and I feel a lot more a part of that when I’m outside gardening. So, I think that it contributes to positive mental health. I feel more balanced.

Other gardeners also noted improvements in physical and mental health from gardening. A different female gardener discussed how gardening reminded her that there is “something bigger” than her out there, describing gardening as “miraculous” and “intelligent.” She also claimed that learning how to garden made her feel more confident, especially after her second year, when she gardened independently. The gardeners at the WSCG recounted their gardening experiences with thick descriptions, which made it seem as if they were deeply connected to the earth through gardening.

The community garden provides many residents with better gardening conditions than their homes. One couple said they were unable to garden at home due to poor soil and a high prevalence of rodents and deer. A younger but experienced gardener claimed her home did not provide enough sunlight for gardening, which is why she gardens at the WSCG.<sup>4</sup> The WSCG provides abundant sunlight and sandier soils compared to much of

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<sup>4</sup> Those independently gardening three or more years are considered experienced.

the city of Athens. These adequate gardening conditions bring together many gardeners who are then able to share their knowledge with each other. One gardening couple said they found it “pleasant to walk around the garden and see the other gardens start to come up and flourish.” Similar to the DSMG gardeners in Baltimore, several WSCG gardeners said they enjoyed walking around and looking at other plots to see what other gardeners were planting.

As with the gardeners at DSMG, knowledge was a recurring theme brought up during interviews with WSCG gardeners. Gardeners identified many techniques they learned throughout their gardening experience. Some of the techniques were passed on by fellow gardeners and others were learned at the various workshops offered by CFI. Several of the gardeners spoke of learning how to prune tomatoes, a technique taught at the Perfect Tomatoes workshop held early in the summer. Others said they attended the Companion Plants workshop where they were taught about compatible plants and plant varieties, such as the difference between heirloom and hybrid plants. Both experienced and non-experienced gardeners attended the workshops and found them helpful. Many of the newer gardeners were offered advice from more experienced gardeners, without even asking. These included tips regarding planting, watering, harvesting, fence building, composting, and pest control.

All of the gardeners identified fresh food as an obvious benefit and many also elaborated on the importance of knowing the source of their food and the how food is produced currently in the US. For example, one female gardener, who also works with local foods, stated:

What's going on now with Monsanto and all of that – trying to monopolize the whole food system in this country and all of the seeds in this country and genetically modifying everything – I don't want to eat something that's been genetically modified. And if they're controlling everything and doing this stuff to my food, I don't want to eat that, so I want to know how to grow my own food so I have a choice in what I'm eating. And, making sure what I'm eating is healthy and I know what's in it and I know where it came from.

It was apparent that many of the gardeners were concerned with these issues surrounding food procurement. Another female gardener remarked:

I think for a lot of people who have their finger on the pulse of this nation, we understand that oil is a limited resource and therefore every time you have to ship food across the country – I mean we're talking about a really basic need here – that's really resource intensive and it seems like a silly thing to do when you can grow food at home.

A first-year male gardener admitted that gardening has made him more aware of the “true” cost of store-bought produce, causing him to start reading books on the subject and thus, has become more conscious of the foods he eats. Another first-year male gardener said since taking up gardening, he's become less interested in the “perfect grocery tomatoes that were grown who knows where” and prefers local foods instead. Several other gardeners claimed to eat seasonally whenever possible, a practice they felt contributed to more sustainable in food production. The WSCG gardeners seemed very familiar with the idea of eating locally and the benefits associated with it. This most likely comes from the local food environment in Athens and its emphasis on specialty foods, such as organic and local, which are widely available throughout the city. To these gardeners, growing their own is important because it connects them to the food they eat.

While most gardeners found it difficult to compare the quality of their produce to the “professionals” at the AFM, all of the gardeners agreed that the quality of their food



exceeded grocery store bought produce. A younger, first-year, male gardener commented on grocery store produce tasting like oil:

My zucchinis got really big so they weren't the best zucchinis, but still they didn't taste like oil, you know. So, there's like this big mental factor that goes into kind of the qualities that I really like, and plus the fact, it's just that I'm eating my own sweat and hard work instead of, you know, diesel fuel that it took to transport it across the country.

Other gardeners agreed that their produce tasted much better than grocery store produce, even though theirs might have some imperfections. Another second-year female gardener commented on the quality of her food:

To me, it's like a medicine chest – it goes from the garden directly to the kitchen to me. I know it's fresh and I know how it's been treated. And I don't know how the food – I don't even know where it was grown in Kroger or how it was treated or how it was shipped. The vitality, I just think that the vitality of my own food is much higher.

Most of the gardeners agreed that they no longer wanted to eat produce from the grocery store, especially items such as green beans and tomatoes. It is important for the gardeners to believe in their produce and to know that the quality is better than that purchased in the store. This way of thinking will likely lead existing gardeners to continue gardening and persuade others to garden as well.

Growing food at the WSCG also encourages gardeners to cook with more fruits and vegetables instead of with processed and prepared foods, which promotes a healthier diet. One female gardener said that instead of cooking something prepared, "since I have fresh veggies, I'm kind of making things from scratch more...I've been making some casseroles and that kind of stuff." A more experienced gardener expressed the same sentiment:

I mean you definitely eat more vegetables just because they're there. And it also makes you want to cook things from scratch because you have the things that you need so you want to make something with those things. So, it does influence you to cook rather than just buying some pre-made thing.

A long-time gardening couple also discussed the almost overwhelming amount of tomato sauce they'd eaten that fall because of the large tomato crop they had. They had also been trying new recipes to ensure they consumed all of the sauce they had canned. Another experienced female gardener commented on the way gardening has introduced her to new vegetables, such as tomatillos, and ways to cook with different vegetables, such as Swiss chard and kale. She claims she would have never tried those vegetables without gardening. Therefore, food security is improved because gardeners are readily able to use fresh, quality foods to cook with, enabling healthier eating for individuals and families.

The premise of food security is accessing quality foods, which includes affordable and healthy foods. In order to determine the extent to which community gardens contribute to food security, the cost of gardening should be taken into account. With regard to cost, it was difficult to obtain a clear, consistent, and assured answer from almost all of the gardeners. Many gardeners would first indicate they indeed saved money on fresh produce from gardening. However, once they started listing other expenses associated with gardening, they rethought their actual savings. One experienced couple declared they were definitely spending less money on produce but that it didn't make a difference in their budget because of the plot fee instituted by CFI and the cost of seeds, rodent repellent, and personal gardening tools. A second-year female gardener, unsure of the savings associated with gardening, has a "sense" she is spending less at the AFM every weekend:

I haven't specifically sat down and figured it out. I can only go on the feeling of what it's like to go to the Farmers' Market. I used to go, you know, I got to have my kale, I have to have my Swiss chard and so I'd have this sense of what I needed. But, earlier in the season I didn't need those green things so I haven't really budgeted or seen if it has actually gone down but just a feel of, you know, I don't need that, I don't need that, I don't need that. It has felt as though I haven't needed to spend as much, which affects my budget.

While this gardener didn't know exactly how much she spent or saved, she did know she did not need to purchase as much produce. Other interviewees indicated their reason for gardening was not to save money so they were unsure if it made a difference to their budget.

In contrast, an experienced female gardener, who has gardened in several places around Athens County, began gardening in order to save money, stating, "That was the point [of gardening at WSCG]." During the growing season she only purchased products she was unable to grow, such as goat cheese, honey, or onions, which she didn't grow this year. When asked about her seed expenditures, she explained that this year her garden did not save her much money; however, next year she anticipates her savings will be much larger since she will be able to use seeds purchased last year. She also expressed dissatisfaction with the plot fee assessed by CFI. She considers herself "not particularly wealthy" and therefore would like to see other options available for obtaining a plot at the community garden. She instead suggested a communal workday at the garden for those interested in reducing or paying their plot fee with labor. Admittedly, her food security was increased through gardening at WSCG:

I mainly eat a lot of produce and a lot of fresh produce so to have that as a resource in my life – great! That's fantastic. And also because I live on a budget, a very tight budget and so I mean really, especially in the past year, I was like, wow, I just spent all my money and I don't have any money left over for food.

And you know, what do I do with that? And so even to just feel like oh, I can just go to my garden and get some greens and I'll make these beans and it'll be beans and greens for a week and I don't care. You know, that's cool. It definitely does help with the money situation, for sure.

While this gardener believes the plot fee and cost of seeds diminished her savings, the garden provided her with quality food options when she was unable to purchase food otherwise. Clearly, food security is an issue for this gardener. Another experienced gardener I interviewed felt she saved money from gardening, mainly because she freezes her vegetables. The peppers she freezes last her most of the winter. She plans to eventually learn how to can tomatoes. This gardener thinks growing herbs is especially important because they are typically very expensive at the grocery store. A male gardener actually spoke of spending more money on produce since beginning gardening because it has introduced him to a "healthier conscious." While it was difficult for each gardener to determine the exact savings, most of them felt they did save something. Above all, gardening provided them with knowledge of their individual food production and an opportunity to grow fresh food, which reduced their purchases at the grocery store.

The variety of produce was increased by several of the gardeners through trading. Most of the gardeners did not routinely trade produce, but many commented on receiving different kinds of fruits and vegetables out of generosity. One gardening couple said they often give away their crops to gardeners not growing that particular vegetable, such as beets. Another gardener claimed to have received winter squash for her tomatillos and greens. Trading produce can greatly increase variety at a community garden, especially since many gardeners are unable to grow everything they might want due to limited plot

space. One gardener said he would have liked to grow corn and cantaloupe but did not have adequate space. Through trading, this might be achievable.

Similar to the DSMG, the WSCG also greatly contributes to community food security, primarily through donations. Gardeners at the WSCG are required to donate 10% of their produce back to the community. Although gardeners are permitted to donate their produce anywhere in the community, the Donation Station at the AFM is the primary site of donations. Other recipients of donations were children's gardening programs, co-workers in need, college friends, Good Works (a non-profit organization supporting the homeless community of Athens County and surrounding counties), United Campus Ministry (a food kitchen), and elderly neighbors. An end-of-season garden survey conducted in November 2008 indicated that an average of 52 pounds per person was donated.

Most gardeners viewed the Donation Station as an "easy outlet," especially because the donation was a requirement. They didn't have to figure out a place to donate their food because the Donation Station was always available and accepting donations.

Regarding the Donation Station, an experienced couple thought:

It's nice because you'd end up wasting more food if you just have to work individually and try and figure out who you're going to give this to and you might offer it to someone who doesn't really need it but doesn't want to say so.

This couple was also fond of way the Donation Station distributed food and was pleased that their produce was going to multiple organizations around Athens County. However, one younger gardener, who still resided in university housing on campus, felt that the Donation Station at the AFM was too far away for many students without transportation,

so he donated to a children's program he worked with instead. An experienced female gardener wondered if everyone should be required to donate produce. She felt that because she was gardening for personal economic purposes, she shouldn't be mandated to donate 10% of her produce. She also was unaware that the Donation Station was not the required outlet for donations, which set her more at ease regarding the policy. An employee of CFI stated, "It's a personal decision...if you think you need to keep [your produce] then you're food insecure and you should keep it" and followed up with, "Just do what you feel is right and it'll be fine."

The community greatly benefits from the food donated from the WSCG because many people experiencing economic hardships are obtaining access to quality food at no cost, which is increasing their food security. Many gardeners seemed extremely pleased with the donation policy and one even commented on gardening for the sole purpose of donating. If this policy were not in place, many of the gardeners said they would still donate their produce to prevent wasting it.

### Conclusion

The local food environment of the city of Athens is quite different from the Broadway East neighborhood in Baltimore. Instead of a landscape dominated by corner stores offering a limited variety of quality foods, specialty stores and markets are prevalent and offer a wide variety of fresh fruits and vegetables, local produce, and organic foods. Residents with a lower income level, however, are not always able to purchase local and organic food due to higher prices. Because of the abundance of other store types, such as supermarkets and chain grocery stores, these residents are able to

access quality food at affordable prices. Residents in Athens rely less on public transportation because they have access to personal vehicles, making supermarkets, grocery stores, specialty stores, and farmers' markets easily accessible to much of the urban population. However, it should be noted that the rural population is not afforded the same accessibility and often must travel greater distances to purchase fresh and affordable food.

Even with the rich local food environment, including the AFM, the WSCG promotes a self-sustaining lifestyle, which increases the level of food security in the area. The gardeners experience increased food security because they are able to access sustainably produced food, which they feel has a higher quality than grocery store food. Although the gardeners must purchase seeds and pay a plot fee, most of the gardeners still thought they saved money on produce, especially those who froze and canned their produce. Increased savings would be noticed if more gardeners practiced freezing and canning. The gardens, through CFI, are also educating people in the community about freshly produced food and gardening techniques through workshops. Community food security is also increased through the donation policy. The Donation Station allows for food grown in the garden to be distributed to several places around Athens County, which ensures many people in need are receiving quality food.

To increase food security even more, the community gardens should be promoted to more low-income families and individuals. CFI has started doing this through the creation of rural community gardens in several towns and villages around Athens County; however, promoting community gardening as a way to increase food security would

benefit many more city residents as well. In addition, CFI should consider low-income gardeners when instituting the plot fee and donation policy, or possibly just educating low-income gardeners on alternatives to these policies. Overall, the WSCG is improving food security in the city of Athens and the surrounding area.



## CHAPTER 7: CONCLUSIONS

Despite the inability for nearly 50 million people to access quality food in the United States, food insecurity receives relatively little attention. However, it is gaining momentum as many citizens are demanding a link between production and consumption, often occurring through CFS approaches such as community gardening. To make the CFS movement successful and meet the needs of residents, the development of community gardens proves important. With interest from the community and resources from non-profit organizations and the public sector, community gardens have the opportunity to make people more aware of issues of food security as well as their overall involvement with the food system.

The most important conclusion drawn from this research is the importance of community. It is evident that the DSMG and WSCG are successful in their communities. Interest in gardening is apparent and funding is increasing to further improve each garden. A bottom-up approach to development is highly suggested by PPF in Baltimore while CFI takes a different approach in Athens. The approach style used in each community works there but would not likely be successful if reversed. Most residents in Baltimore would not respond well to a garden placed in their community without being directed by them. Their space in the central city proves increasingly important since it is limited. While the need for open space is present, it must be supported by them to fulfill their interests. In Athens, open space is not a priority since most citizens reside on large plots in a rural setting. Therefore, a top-down approach works since the amount of space

is not restricted. The top-down approach used by CFI therefore requires greater involvement in the garden than the approach employed by PPF.

This involvement is apparent at the WSCG. Garden contracts, workshops, and plot assignments are all directed by CFI. At DSMG, Mr. Sharpe, the garden manager, is in charge of the garden and receives support, resources, and connections through PPF. One challenge brought up by CFI was communication; however, this was not mentioned by PPF. Since CFI is more directly involved with WSCG, communication with gardeners proves important. The role CFI plays in community gardens in Athens County is profound and has benefits. For example, CFI increased food security by promoting one children's garden to develop a production garden and sell food at the AFM. The DSMG produces enough fruit and vegetables to sell but independently decided against selling excess produce.

Regardless of the development approach, both gardens in this study face similar challenges. Access to quality soil and water prove to be the largest problems in Baltimore and Athens. Other problems, such as rodents, compost, and garden education are avoidable if targeted at the start of the gardening season. Many gardens in Baltimore, including the DSMG, have overcome soil issues by building raised beds and obtaining free soil from CGRN and the city. Gardeners in Athens work on amending their soil over time and by adding compost. Some even build raised beds. Rain barrel construction is favored at both locations to overcome water access issues. Communities hoping to develop a garden will experience ease if these problems are confronted and ameliorated upfront.

The local food environments surrounding these two gardens are quite different. The Broadway East neighborhood in Baltimore houses seven corner stores, 14 liquor stores, and one grocery store. Many residents rely on public transportation causing increased shopping at corner stores, which offer limited quality foods. Conversely, four grocery stores, four specialty stores, and one farmers' market exist in Athens. Many residents own personal transportation and therefore, less than 1% of the population utilizes public transportation to reach these stores, affording them convenient access to quality food. However, the rural population of Athens County finds it difficult to access these food options since they are required to drive into the city. Therefore, city residents in Athens experience greater food security than residents in Baltimore since they have greater access to quality foods.

Nevertheless, the DSMG and WSCG both contribute to involvement with food systems and food security. Many gardeners at both gardens did not indicate that they gardened for economic purposes but instead because they enjoyed gardening and wanted a closer connection to the food they eat. This relates closely to becoming a "function of consumption," which is why Victory Gardens were formed during World War II (Miller, 2003, p. 404). From this, it can be concluded that community food security is influenced more by these gardens than individual and household food security. Gardeners are required to pay plot fees and purchase seeds and are often unsure of the economic benefit gained from gardening. However, an immense amount of food is donated back to each community. With this, community members in need undoubtedly benefit from access to fresh food without ever gardening. Improved access to quality food increases food

security. These findings are similar to the shifts in approaches to food security identified by Maxwell (2000). Community gardens represent a focus on local issues instead of global issues and draw from gardeners' experiences instead of their nutritional intake. Therefore, this study embodies a shift in literature from food security to food systems.

Not to be misunderstood, individual and household food security is improved as well. Similar to findings in Toronto, gardeners in Baltimore also substitute fruits and vegetables from their garden for store-bought produce (Wakefield, 2007). Several of the DSMG gardeners could not remember the last time they purchased produce at a store. Gardening also enabled WSCG gardeners to eat more fresh food because it was readily available during the growing season. These gardeners also discussed cooking more from scratch and eating less prepared foods. Increased consumption of fruits and vegetables prevents obesity and other diet-related diseases thus; the garden is contributing to healthier lifestyles. These community gardens also provide educational opportunities for adults and children. Some adults are learning how to garden for the first time and are succeeding. Children are also learning how to garden and are exposed to new fruits and vegetables.

Community gardens are an important supplement to other programs increasing food security, such as the Food Stamp Program. Community gardening alone will not resolve the growing number of food insecure residents in the U.S. The first step is education on the importance of healthy eating through nutrition, gardening, and cooking workshops. Once communities become aware of the benefits associated with quality food, they will start demanding a voice in decisions made about their food. In many

cases, this leads to the development of FPCs and foodsheds, which examine the city's complete food system. These bottom-up approaches instill a voice in residents who can then persuade municipalities to consider developing a Department of Food to oversee food production. Since demand is rising to connect production with consumption, it becomes possible to localize agriculture and create policy. Policy recommendations include restricting fast food advertising, especially in targeted locations, and increasing access and improving public transportation to stores offering quality food options. Government and non-government agencies are also urged to help with the development of CFS approaches. Providing funding, resources, and manuals such as the *Community Garden Resource Manual* and the *Guide to Greening Neighborhoods* encourages gardening through a bottom-up approach.

Future research on CFS approaches such as community gardening will only improve food security. First, interviews with non-gardeners would provide insight into how they view food security and how they obtain staple foods. Comparing their responses to gardeners' responses would be valuable in future food security studies. I am also interested in interviewing garden managers from gardens in Baltimore who are part of the CGRN network. Over time, these gardens should improve from the connections established as a result of their membership. This research would highlight the effectiveness of this organization. Lastly, this study has led me to develop interest in inclusionary and exclusionary processes resulting from fence construction. Strong opinions related to fences were often brought up during interviews with WSCG gardeners. Interviews on this subject would determine how gardeners view their garden

space and how surrounding fences affect their gardening experience. It also might determine if fences prevent people from gardening due to exclusion.

The DSMG and WSCG are large, productive, and established gardens dating back over 20 years. Their long-time presence has greatly benefited East Baltimore, the city of Athens, and Athens County. Smaller, less-established gardens might not have the same effect or the capability of producing as much food. However, any garden has the potential of contributing to involvement with food systems and food security. If developed correctly and passionately, community gardens will improve any community. Approaches to CFS need to maintain their goal of equity by providing safe and culturally acceptable foods to all populations in a sustainably, economically, and socially just manner.

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## APPENDIX A: GROCERY PRICES AT SELECTED STORES IN BALTIMORE

| Date Collected         |               | 10/22/09   | 10/19/09            | 10/19/09         | 10/20/09          | 10/20/2009    | 10/22/09       |
|------------------------|---------------|------------|---------------------|------------------|-------------------|---------------|----------------|
| Group A                | Amount        | Food Depot | Downtown Superfresh | Lexington Market | Towson Superfresh | Timonium Mars | Canton Safeway |
| Apples (Red delicious) | Per pound     | \$0.88     | \$1.69              | 3 for \$1.25     | \$1.69            | \$1.49        | \$1.59         |
| Bananas                | Per pound     | \$0.56     | \$0.79              | \$0.69           | \$0.69            | \$0.59        | \$0.58         |
| Oranges                | Each          | \$0.50     | \$0.80              | \$0.42           | \$0.80            | \$0.40        | \$1.29/lb      |
| Tomatoes (Slicing)     | Per pound     | \$0.88     | \$2.99              | \$1.49           | \$2.99            | \$1.99        | \$2.99         |
| Celery                 | 1 pound Bunch | \$1.68     | \$1.99              | \$1.50           | \$1.99            | \$1.99        | \$1.99         |
| Lettuce (Romaine)      | Per Pound     | \$1.28     | \$1.99              | \$1.29           | \$1.99            | \$1.69        | \$1.69         |
| Lettuce (Iceberg)      | Per pound     | \$1.68     | \$1.99              | \$1.79           | \$1.79            | \$1.69        | \$1.79         |
| Cabbage                | Per pound     | \$0.50     | \$0.69              | \$0.69           | N/A               | \$0.59        | \$0.69         |
| Green Pepper           | Per pound     | \$1.48     | \$1.99              | \$0.69 each      | \$2.49            | \$0.67 each   | \$1.69         |
| Carrots                | 1 lb bag      | \$1.68     | \$1.29              | \$1.50           | \$1.29            | \$0.99        | \$0.99         |
| Onion (sweet onion)    | Per pound     | \$0.88     | \$1.69              | \$0.99           | \$1.69            | \$0.99        | \$1.49         |



| <b>Group B</b>                        | <b>Amount</b> | <b>Food Depot</b>       | <b>Downtown Superfresh</b> | <b>Lexington Market</b> | <b>Towson Superfresh</b> | <b>Timonium Mars</b> | <b>Canton Safeway</b> |
|---------------------------------------|---------------|-------------------------|----------------------------|-------------------------|--------------------------|----------------------|-----------------------|
| Bacon (Oscar Meyer)                   | 1 lb pkg      | \$3.98                  | \$5.49                     | \$2.98                  | \$5.49                   | \$5.49               | \$5.79                |
| Chicken (Perdue boneless skinless)    | Per pound     | \$3.98<br>(store brand) | \$2.64                     | \$3.59<br>(Sipes)       | \$2.64                   | \$2.69               | \$4.99                |
| Ground Beef (store brand 80%/20%)     | Per pound     | \$2.98                  | \$3.00                     | \$2.59                  | \$3.00                   | \$2.19               | \$3.99                |
| Ground Turkey (Shadybrook Farms 93/7) | Per pound     | \$2.48                  | \$3.99                     | \$1.89<br>(Sipes)       | N/A                      | \$3.99               | \$4.99                |
| Milk – 2% (Store brand)               | 1 gallon      | \$2.78                  | \$3.99                     | \$4.49                  | \$3.49                   | \$3.19               | \$3.69                |
| Eggs – Large Grade A (Store Brand)    | 1 dozen       | \$1.14                  | \$3.39                     | \$1.99<br>(Sipes)       | \$1.69                   | \$1.69               | \$1.99                |
| Margarine (Country Crock)             | 15 oz. tub    | \$2.28                  | \$2.29                     | \$1.79<br>(4 sticks)    | \$2.29                   | \$2.39               | \$2.50                |
| Butter (Store Brand)                  | 4 sticks      | \$1.54                  | \$2.50                     | \$1.89                  | \$2.50                   | \$3.19               | \$3.99                |
| Cheese – Cheddar (Store Brand)        | 8 oz.         | \$1.64                  | \$2.89                     | \$2.99                  | \$3.29                   | \$2.50               | \$2.49                |

| <b>Group C</b>              | <b>Amount</b> | <b>Food Depot</b> | <b>Downtown Superfresh</b> | <b>Lexington Market</b> | <b>Towson Superfresh</b> | <b>Timonium Mars</b> | <b>Canton Safeway</b> |
|-----------------------------|---------------|-------------------|----------------------------|-------------------------|--------------------------|----------------------|-----------------------|
| Orange Juice (Store Brand)  | 1 gallon      | \$4.68            | \$3.99                     | \$5.58<br>(adjusted)    | \$3.99                   | \$3.99               | \$3.99                |
| Oatmeal (Quaker)            | 18 oz.        | \$2.48            | \$2.99                     | \$2.89                  | \$2.99                   | \$2.39               | \$2.75                |
| Ketchup (Hunt's)            | 24 oz.        | \$1.24            | \$1.89                     | \$1.99                  | \$1.89                   | \$1.63               | \$1.99                |
| Mayonnaise (Hellman's)      | 15 oz.        | \$3.08            | \$3.19                     | \$3.49                  | \$3.49                   | \$2.99               | \$3.35                |
| Raisins (Sun Maid)          | 24 oz.        | \$3.54            | \$4.99                     | \$4.46<br>(adjusted)    | \$4.99                   | \$3.99               | \$4.99                |
| Syrup (Store Brand)         | 24 oz.        | \$2.34            | \$2.99                     | \$2.89                  | \$2.99                   | \$2.49               | \$2.99                |
| Peanut Butter (Jif, Creamy) | 18 oz.        | \$2.58            | \$3.19                     | \$3.89                  | \$3.19                   | \$2.49               | \$2.99                |
| Sugar (Domino)              | 5 lb bag      | \$3.44            | \$2.99                     | \$3.99                  | \$4.29                   | \$3.19               | \$3.59                |
| Bread Crumbs (Progresso)    | 15 oz.        | \$1.84            | \$2.19                     | \$2.29                  | \$2.19                   | \$1.79               | \$2.00                |
| Flour (Gold Medal)          | 5 lb bag      | \$2.99            | \$2.99                     | \$2.99                  | \$2.99                   | \$2.89               | \$2.99                |

| <b>Group D</b>                           | <b>Amount</b>  | <b>Food Depot</b>    | <b>Downtown Superfresh</b> | <b>Lexington Market</b> | <b>Towson Superfresh</b> | <b>Timonium Mars</b> | <b>Canton Safeway</b> |
|--|----------------|----------------------|----------------------------|-------------------------|--------------------------|----------------------|-----------------------|
| Tuna (Starkist – White Albacore)         | 5 oz can       | \$1.48               | \$1.79                     | \$1.99<br>(Bumblebee)   | \$1.20<br>(adjusted)     | \$1.05               | \$2.19                |
| Frozen Peas (Store brand)                | 16 oz. bag     | \$2.26<br>(adjusted) | \$1.75<br>(adjusted)       | \$1.89                  | \$2.07<br>(adjusted)     | \$1.49               | \$1.67<br>(adjusted)  |
| Canned Beans - Cut Green (Store brand)   | 14.5 oz can    | \$0.74               | \$0.79                     | \$1.09                  | \$0.79                   | \$0.99               | \$0.79                |
| Canned Corn – Whole Kernel (Store brand) | 15.25 oz can   | \$0.68               | \$0.79                     | \$0.89<br>(sold out)    | \$0.79                   | \$0.99               | \$0.79                |
| Canned Tomatoes Diced (Store brand)      | 14.5 oz can    | \$1.55               | \$1.19                     | \$0.99                  | \$1.19                   | \$1.23               | \$1.00                |
| White Rice (Store brand)                 | 1 lb 12 oz box | \$3.74               | \$3.09                     | \$3.98<br>(adjusted)    | \$3.09                   | \$3.99<br>(Minute)   | \$3.69                |
| Potatoes (Idaho Russet)                  | 5 lb bag       | \$2.48               | \$7.45<br>(adjusted)       | \$4.45<br>(adjusted)    | \$7.45<br>(adjusted)     | \$2.99               | \$3.69                |
| Navy Beans (Store brand)                 | 1 lb bag       | \$1.38               | \$1.19                     | \$1.69                  | \$1.19                   | \$1.49<br>(Goya)     | \$1.65<br>(Goya)      |
| Kidney Beans (Store brand)               | 15 oz can      | \$0.94               | \$0.79                     | \$1.09                  | \$0.79                   | \$1.00               | \$0.99                |
| Rice (Whole Grain – Uncle Ben's)         | 14 oz. box     | \$1.67               | \$2.19                     | N/A                     | \$2.59                   | \$2.29               | \$3.19                |

| <b>Group E</b>               | <b>Amount</b> | <b>Food Depot</b>   | <b>Downtown Superfresh</b> | <b>Lexington Market</b> | <b>Towson Superfresh</b> | <b>Timonium Mars</b> | <b>Canton Safeway</b> |
|------------------------------|---------------|---------------------|----------------------------|-------------------------|--------------------------|----------------------|-----------------------|
| Corn Flakes (Kellogg's)      | 18 oz box     | \$3.74              | \$4.78<br>(adjusted)       | \$3.99                  | \$3.89                   | \$3.89               | \$3.49                |
| Raisin Bran (Post)           | 20 oz box     | \$3.64              | \$3.69                     | \$4.59                  | \$3.69                   | \$3.49               | \$3.49                |
| Vegetable Oil (store brand)  | 48 oz         | \$2.78              | \$2.99                     | \$5.99<br>(Wesson)      | \$2.99                   | \$3.99               | \$3.99                |
| Wheat Bread (store brand)    | 1 lb loaf     | \$1.28              | \$1.99                     | \$1.99                  | \$1.99                   | \$1.59               | \$1.19                |
| Buns (sandwich, store brand) | 8 count pkg   | \$0.98              | \$1.59                     | \$1.50                  | \$1.59                   | \$1.50               | \$1.39                |
| Spaghetti (Barilla)          | 1 lb box      | \$1.34              | \$1.59                     | \$1.79<br>(San Giorgio) | \$1.59                   | \$1.39               | \$1.50                |
| English Muffins (Thomas)     | 6 count pkg   | \$1.00<br>(Generic) | \$3.99                     | N/A                     | \$3.99                   | \$3.39               | \$3.39                |

| <b>Group F</b>                                       | <b>Amount</b>     | <b>Food Depot</b> | <b>Downtown Superfresh</b> | <b>Lexington Market</b>    | <b>Towson Superfresh</b>  | <b>Timonium Mars</b>      | <b>Canton Safeway</b> |
|--|-------------------|-------------------|----------------------------|----------------------------|---------------------------|---------------------------|-----------------------|
| Baby Formula (Similac, Isomil Advanced Soy)          | 12.9 oz           | \$14.88           | \$14.99                    | N/A                        | Only carry "ready-to-use" | Only carry "ready-to-use" | \$14.49               |
| Toothpaste (Colgate Total Whitening)                 | 4.2 oz            | \$2.74            | \$2.49                     | \$2.99                     | \$3.79                    | \$3.29                    | \$3.29                |
| Tampons (Tampax Regular)                             | 20 count          | \$3.08            | \$3.99                     | \$5.98 (adjusted)          | \$3.99                    | \$3.99                    | \$3.99                |
| Lemonade Mix (Country Time)                          | 19 oz             | \$3.64            | \$2.99                     | \$3.99                     | \$2.16 (adjusted)         | \$2.99                    | \$3.49                |
| Toilet Paper (Value brand, 198 sheets/roll, one ply) | 1000 1-ply sheets | \$0.94            | \$0.99                     | Did not carry single rolls | \$0.75                    | \$0.95                    | \$1.29                |

**Key:**

(Adjusted) – package size adjusted for price

(Brand Name) – brand used for pricing (other brand not available)

## APPENDIX B: GROCERY PRICES AT SELECTED STORES IN ATHENS

| Date Collected          |           | 3/1/10           | 3/1/10          | 3/1/10              | 3/5/10             | 3/6/10         | 3/1/10     | 3/3/10       |
|-------------------------|-----------|------------------|-----------------|---------------------|--------------------|----------------|------------|--------------|
| Group A                 | Amount    | Union St. Market | Busy Day Market | The Pharmacy        | Under-cover Market | Farmers Market | CVS Uptown | CVS State St |
| Apples (Red delicious)  | Per pound |                  |                 | \$0.79 (each)       |                    |                |            |              |
| Bananas                 | Per pound |                  |                 | \$0.99 Organic      |                    |                |            |              |
| Oranges                 | Per pound |                  |                 | \$0.99 each Organic |                    |                |            |              |
| Tomatoes (Liberty Bell) | Per pound |                  |                 | \$2.99 Organic      | \$3.00 Organic     |                |            |              |
| Celery                  | Bunch     |                  | \$2.59          | \$1.99 Organic      |                    |                |            |              |
| Lettuce (Romaine)       | Per Pound |                  | \$1.79 (head)   | \$1.49 Organic      |                    |                |            |              |
| Lettuce (Iceberg)       | Per pound |                  | \$1.79 (head)   |                     |                    |                |            |              |
| Cabbage                 | Per pound |                  |                 | \$1.29 Organic      | \$1.50 Organic     |                |            |              |
| Green Pepper            | Each      |                  |                 |                     |                    |                |            |              |
| Carrots                 | 1 lb bag  |                  | \$1.19          | \$1.39 Organic      | \$2.25 Organic     |                |            |              |
| Onion (sweet onion)     | Per pound |                  | \$0.69 (each)   | \$0.99 Organic      | \$1.50 Organic     |                |            |              |

| <b>Group B</b>                         | <b>Amount</b> | <b>Union<br/>St.<br/>Market</b> | <b>Busy<br/>Day<br/>Market</b> | <b>The<br/>Farmacy</b>     | <b>Under-<br/>cover<br/>Market</b> | <b>Farmers<br/>Market</b> | <b>CVS<br/>Uptown</b> | <b>CVS<br/>State<br/>Street</b> |
|--|---------------|---------------------------------|--------------------------------|----------------------------|------------------------------------|---------------------------|-----------------------|---------------------------------|
| Bacon (Oscar Meyer)                    | 1 lb pkg      |                                 |                                | \$4.59<br>No nitrates      | \$5.95<br>Local                    |                           |                       |                                 |
| Chicken (Tyson boneless skinless)      | Per pound     |                                 |                                | \$3.19<br>Amish            | \$9.95<br>Local                    |                           |                       |                                 |
| Ground Beef (store brand)              | Per pound     |                                 |                                | \$5.99<br>Local            | \$6.75<br>Local                    |                           |                       |                                 |
| Ground Turkey (Honeysuckle White 93/7) | Per pound     |                                 |                                | \$5.32 (adj)<br>Free range |                                    |                           |                       |                                 |
| Milk – 2% (Store brand)                | 1 gallon      | \$6.10<br>(adj)                 | \$4.69                         | 5.98 (adj)<br>Local        | \$5.98<br>(adj)<br>Local           |                           | \$3.58<br>(adj)       | \$2.49                          |
| Eggs – Large Grade A (Store Brand)     | 1 dozen       | \$2.49                          | \$2.09                         | \$3.49<br>Local            | \$3.50<br>Local                    |                           | \$2.39                | \$2.69                          |
| Margarine (Country Crock)              | 15 oz.        | \$2.99                          |                                | \$2.99<br>Soybean          |                                    |                           | \$1.86<br>(off)       |                                 |
| Butter (Store Brand)                   | 4 sticks      | \$3.79                          |                                | \$3.29<br>Organic          | \$4.37<br>(adj)<br>Local           |                           | \$1.52                |                                 |
| Cheese – Cheddar (Store Brand)         | 8 oz.         | \$3.59                          | \$2.49                         | \$4.49<br>Natural          |                                    |                           |                       |                                 |

| <b>Group C</b>              | <b>Amount</b> | <b>Union St. Market</b> | <b>Busy Day Market</b> | <b>The Farmacy</b>   | <b>Under-cover Market</b> | <b>Farmers Market</b> | <b>CVS Uptown</b>   | <b>CVS State Street</b> |
|-----------------------------|---------------|-------------------------|------------------------|----------------------|---------------------------|-----------------------|---------------------|-------------------------|
| Orange Juice (Store Brand)  | ½ gallon      | \$4.89                  |                        | \$5.99 Organic       |                           |                       | \$4.29 Tropicana    | \$3.79                  |
| Oatmeal (Quaker)            | 18 oz.        |                         |                        | \$2.01 (adj) Bulk    |                           |                       | \$3.29              | \$3.29                  |
| Ketchup (Hunt's)            | 36 oz.        |                         | \$5.02 (adj)           | \$7.43 (adj) Organic |                           |                       | \$3.93 (adj) Heinz  | \$3.93 (adj) Heinz      |
| Mayonnaise (Hellman's)      | 15 oz.        |                         | \$4.19                 | \$5.99 Organic       |                           |                       | \$2.99 (adj)        | \$2.99 (adj)            |
| Raisins (Sun Maid)          | 24 oz.        |                         |                        |                      |                           |                       | \$4.65 (adj)        | \$4.65 (adj)            |
| Syrup (Store Brand)         | 24 oz.        | \$3.29                  |                        |                      |                           |                       | \$3.39              | \$3.39                  |
| Peanut Butter (Jif, Creamy) | 18 oz.        | \$3.59 (Skippy)         | \$3.49                 | \$5.61 (adj) Organic | \$4.99 Organic            |                       | \$3.63 (adj) Skippy | \$3.49                  |
| Sugar (Domino)              | 5 lb bag      | \$9.95 (adj)            | \$5.19                 | \$6.95 (adj) Bulk    |                           |                       | \$4.11              | \$6.37 (adj)            |
| Bread Crumbs (Progresso)    | 15 oz.        |                         | \$2.29                 |                      |                           |                       | \$2.15              |                         |
| Flour (Gold Medal)          | 5 lb bag      | \$6.98 (adj)            | \$3.99                 | \$4.95 Bulk          | \$8.89 Spelt Organic      |                       | \$2.99              | \$3.03                  |

| <b>Group D</b>                           | <b>Amount</b>  | <b>Union St. Market</b> | <b>Busy Day Market</b> | <b>The Pharmacy</b>  | <b>Undercover Market</b> | <b>Farmers Market</b> | <b>CVS Uptown</b> | <b>CVS State Street</b> |
|--|----------------|-------------------------|------------------------|----------------------|--------------------------|-----------------------|-------------------|-------------------------|
| Tuna (Starkist – White Albacore)         | 5 oz can       | \$1.35 (adj)            |                        | \$3.95 Sustainable   |                          |                       | \$1.99 Bumblebee  | \$1.99 Bumblebee        |
| Frozen Peas (Store brand)                | 12 oz bag      |                         |                        | \$1.88 (adj)         |                          |                       |                   |                         |
| Canned Beans - Cut Green (Store brand)   | 14.5 oz can    |                         | \$1.69                 |                      |                          |                       | \$0.91            |                         |
| Canned Corn – Whole Kernel (Store brand) | 15.25 oz can   |                         | \$1.69                 |                      |                          |                       | \$1.87            |                         |
| Canned Tomatoes Diced (Store brand)      | 14.5 oz can    |                         | \$1.39                 |                      |                          |                       |                   |                         |
| White Rice (Store brand)                 | 1 lb 12 oz box |                         |                        |                      |                          |                       | \$5.92 (adj)      |                         |
| Potatoes (Idaho Russet)                  | 5 lb bag       | \$0.99 (each)           |                        | \$4.95 (adj) Organic | \$2.99                   |                       |                   |                         |
| Navy Beans (Store brand)                 | 1 lb bag       |                         |                        | \$2.29 Organic       |                          |                       |                   |                         |
| Kidney Beans (Store brand)               | 15 oz can      |                         | \$2.49 Organic         | \$2.29 Organic       |                          |                       |                   |                         |
| Rice (Whole Grain – Uncle Ben's)         | 14 oz. box     |                         |                        | \$1.13 (adj) Bulk    | \$1.48 (adj)             |                       |                   |                         |

| <b>Group E</b>               | <b>Amount</b> | <b>Union St. Market</b> | <b>Busy Day Market</b> | <b>The Pharmacy</b>   | <b>Undercover Market</b> | <b>Farmers Market</b> | <b>CVS Uptown</b> | <b>CVS State Street</b> |
|------------------------------|---------------|-------------------------|------------------------|-----------------------|--------------------------|-----------------------|-------------------|-------------------------|
| Corn Flakes (Kellogg's)      | 18 oz box     | \$8.97 (adj)            |                        | \$8.47 (adj) Organic  |                          |                       | \$6.43 (adj)      | \$6.43 (adj)            |
| Raisin Bran (Post)           | 20 oz box     |                         |                        |                       |                          |                       | \$5.99 (adj)      | \$5.99 (adj)            |
| Vegetable Oil (store brand)  | 48 oz         | \$7.78 (adj)            | \$6.88 (adj)           | \$11.98 (adj) Organic |                          |                       |                   |                         |
| Wheat Bread (store brand)    | 1 lb loaf     |                         | \$2.49                 | \$3.99 Local          |                          |                       | \$2.89            |                         |
| Buns (sandwich, store brand) | 8 count pkg   |                         | \$2.29                 |                       |                          |                       | \$2.39            |                         |
| Spaghetti (Barilla)          | 1 lb box      | \$1.99                  | \$1.99                 | \$2.95 Gluten free    | \$2.99 Organic           |                       | \$1.69            | \$1.69                  |
| English Muffins              | 6 count pkg   |                         |                        |                       |                          |                       |                   |                         |

| Group F                                     | Amount   | Union St. Market | Busy Day Market                 | The Pharmacy                      | Undercover Market | Farmers Market | CVS Uptown                       | CVS State Street                 |
|---|----------|------------------|---------------------------------|-----------------------------------|-------------------|----------------|----------------------------------|----------------------------------|
| Baby Formula (Similac, Isomil Advanced Soy) | 12.9 oz  |                  |                                 |                                   |                   |                | \$14.49                          | \$14.49                          |
| Toothpaste (Colgate Total Whitening)        | 4.2 oz   | \$1.69           | \$3.99                          | \$4.99 (Tom's)                    |                   |                | \$3.89                           | \$3.89                           |
| Tampons (Tampax Regular)                    | 20 count | \$7.58 (adj)     | \$7.22 (adj) Playtex            |                                   |                   |                | \$3.89                           | \$3.89                           |
| Lemonade Mix (Country Time)                 | 19 oz    |                  |                                 |                                   |                   |                |                                  |                                  |
| Toilet Paper (Angel Soft 176 sheets, 2 ply) | 4 rolls  | \$2.29           | \$2.69 Charmin 88 sheets, 2 ply | \$0.99 1 roll, 2 ply enviro brand |                   |                | \$1.39 Scott, 1000 sheets, 1 ply | \$1.39 Scott, 1000 sheets, 1 ply |

| Date Collected          |           | 3/2/10      | 3/2/10      | 3/2/10            | 3/2/10            | 3/1/10       | 3/3/10               |
|-------------------------|-----------|-------------|-------------|-------------------|-------------------|--------------|----------------------|
| Group A                 | Amount    | Kroger      | Walmart     | Aldi              | Save-A-Lot        | C&E          | Seaman's             |
| Apples (Red delicious)  | Per pound | \$1.49      | \$1.00      | \$0.66 (adj)      | \$0.50 (adj)      | \$0.83 (adj) | \$2.29               |
| Bananas                 | Per pound | \$0.49      | \$0.49      |                   | \$0.49            | \$0.69       | \$0.59               |
| Oranges                 | Per pound | \$0.50 Each | \$0.64 Each | \$0.76 (adj)      | \$0.75 (adj)      | \$0.59 Each  | \$0.66 Each          |
| Tomatoes (Liberty Bell) | Per pound | \$1.99      | \$1.88      | \$1.59            | \$2.39            | \$2.69       | \$2.99               |
| Celery                  | Bunch     | \$1.69      | \$1.48      | \$0.99            | \$1.29            | \$1.79       | \$1.99               |
| Lettuce (Romaine)       | Per Pound | \$1.69      | \$1.38      | \$1.59 18 oz. bag | \$2.49 10 oz. bag |              |                      |
| Lettuce (Iceburg)       | Per pound | \$1.28      | \$1.28      | \$0.99 12 oz. bag | \$0.99            | \$1.29       | \$1.99               |
| Cabbage                 | Per pound | \$0.69      | \$0.64      | \$0.99            | \$0.59            | \$0.69       | \$0.99               |
| Green Pepper            | Each      | \$0.97      | \$0.98      | \$0.90 (adj)      | \$1.29            | \$1.39       | \$1.49               |
| Carrots                 | 1 lb bag  | \$0.89      | \$1.12      | \$1.29            | \$0.70 (adj)      | \$0.99       | \$1.24 (adj) Organic |
| Onion (sweet onion)     | Per pound | \$0.89      | \$0.78      | \$0.33 (adj)      | \$1.00 (adj)      | \$1.19       | \$1.39               |



| Group B                                | Amount     | Kroger             | Walmart                      | Aldi                    | Save-A-Lot              | C&E                     | Seaman's           |
|--|------------|--------------------|------------------------------|-------------------------|-------------------------|-------------------------|--------------------|
| Bacon (Oscar Meyer)                    | 1 lb pkg   | \$5.99             | \$3.00                       | \$2.49<br>(off)         | \$2.99<br>(off)         | \$4.59<br>(Bob Evans)   | \$3.39<br>(off)    |
| Chicken (Tyson boneless skinless)      | Per pound  | \$4.33             | \$4.50<br>(Perdue)           | \$2.09<br>(off, frozen) | \$1.99<br>(off, frozen) | \$2.79<br>(off)         | \$3.49<br>(off)    |
| Ground Beef (store brand)              | Per pound  | \$2.62<br>(80/20%) | \$2.58<br>(80/20%)           | \$2.49<br>(80/20%)      | \$2.19<br>(81/19%)      | \$1.99<br>(81/19%)      | \$2.99<br>(73/27%) |
| Ground Turkey (Honeysuckle White 93/7) | 1.2 pounds | \$3.29             | \$1.98<br>(frozen 1 lb roll) | \$2.49<br>(off)         | \$1.00<br>(off, frozen) | \$1.69<br>(off, frozen) | \$2.99             |
| Milk – 2% (Store brand)                | 1 gallon   | \$2.99             | \$3.32                       | \$2.46                  | \$2.59                  | \$3.39                  | \$3.49             |
| Eggs – Large Grade A (Store Brand)     | 1 dozen    | \$1.59             | \$1.52                       | \$1.25                  | \$1.35                  | \$1.79                  | \$1.79             |
| Margarine (Country Crock)              | 15 oz.     | \$2.19             | \$1.78                       | \$0.99<br>(off)         | \$1.19<br>(off)         | \$2.55                  | \$2.45             |
| Butter (Store Brand)                   | 4 sticks   | \$1.89             | \$2.08                       | \$1.99                  | \$1.99                  | \$1.25                  | \$3.29             |
| Cheese – Cheddar (Store Brand)         | 8 oz.      | \$2.99             | \$2.12                       | \$1.79                  | \$1.79                  | \$2.49                  | \$3.85<br>(Kraft)  |

| Group C                     | Amount   | Kroger | Walmart | Aldi                     | Save-A-Lot      | C&E               | Seaman's        |
|-----------------------------|----------|--------|---------|--------------------------|-----------------|-------------------|-----------------|
| Orange Juice (Store Brand)  | ½ gallon | \$2.69 | \$2.28  | \$1.79                   | \$1.50<br>(adj) | \$1.39            | \$2.89          |
| Oatmeal (Quaker)            | 18 oz.   | \$2.99 | \$2.12  | \$0.77<br>(adj)<br>(off) | \$1.79          | \$3.09            | \$2.99          |
| Ketchup (Hunt's)            | 36 oz.   | \$2.19 | \$1.78  | \$1.29<br>(off)          | \$1.48<br>(off) | \$2.15<br>(off)   | \$2.19          |
| Mayonnaise (Hellman's)      | 15 oz.   | \$3.19 | \$2.62  | \$0.93<br>(off)          | \$1.49<br>(off) | \$3.65<br>(Kraft) | \$3.59          |
| Raisins (Sun Maid)          | 24 oz.   | \$3.99 | \$2.98  |                          | \$3.18<br>(adj) | \$4.99            | \$4.56<br>(adj) |
| Syrup (Store Brand)         | 24 oz.   | \$2.59 | \$1.88  | \$1.49                   | \$1.49          | \$2.95            | \$2.45          |
| Peanut Butter (Jif, Creamy) | 18 oz.   | \$3.09 | \$2.42  | \$1.39<br>(off)          | \$1.49<br>(off) | \$3.15            | \$2.99          |
| Sugar (Domino)              | 5 lb bag | \$3.99 | \$3.38  | \$2.68<br>(off)          | \$1.99<br>(off) | \$4.59            | \$4.45          |
| Bread Crumbs (Progresso)    | 15 oz.   | \$2.29 | \$1.97  |                          | \$0.99<br>(off) | \$2.49            | \$2.15          |
| Flour (Gold Medal)          | 5 lb bag | \$3.29 | \$2.28  | \$1.39<br>(off)          | \$1.49<br>(off) | \$3.15            | \$2.99          |

| <b>Group D</b>                           | <b>Amount</b>  | <b>Kroger</b>   | <b>Walmart</b> | <b>Aldi</b>              | <b>Save-A-Lot</b>        | <b>C&amp;E</b>  | <b>Seaman's</b>        |
|--|----------------|-----------------|----------------|--------------------------|--------------------------|-----------------|------------------------|
| Tuna (Starkist – White Albacore)         | 5 oz can       | \$1.79          | \$1.44         | \$0.59<br>(off)          | \$0.69<br>(off)          | \$1.79          | \$1.19                 |
| Frozen Peas (Store brand)                | 12 oz bag      | \$1.19          | \$0.86 (adj)   | \$0.71<br>(adj)          | \$0.74<br>(adj)          | \$1.87<br>(adj) | \$1.19 (adj)           |
| Canned Beans - Cut Green (Store brand)   | 14.5 oz can    | \$0.67          | \$0.82         | \$0.49                   | \$0.47                   | \$1.19          | \$0.95                 |
| Canned Corn – Whole Kernel (Store brand) | 15.25 oz can   | \$0.67          | \$0.82         | \$0.49                   | \$0.49                   | \$1.19          | \$0.95                 |
| Canned Tomatoes Diced (Store brand)      | 14.5 oz can    | \$0.89          | \$0.96         | \$0.55                   | \$0.59                   | \$1.85          | \$0.89                 |
| White Rice (Store brand)                 | 1 lb 12 oz box | \$1.67          | \$3.12         | \$0.87<br>(adj)          | \$2.49                   | \$4.49          | \$3.00<br>(Uncle Bens) |
| Potatoes (Idaho Russet)                  | 5 lb bag       | \$1.50<br>(adj) | \$2.47         | \$1.00<br>(adj)          | \$1.69                   | \$2.49          | \$1.50 (adj)           |
| Navy Beans (Store brand)                 | 1 lb bag       | \$1.79          | \$1.28         |                          | \$0.99                   | \$1.45          | \$1.25                 |
| Kidney Beans (Store brand)               | 15 oz can      | \$0.67          | \$0.78         | \$0.59                   | \$0.59                   | \$1.25          | \$1.15                 |
| Rice (Whole Grain – Uncle Ben's)         | 14 oz. box     | \$2.89          | \$2.28         | \$0.56<br>(adj)<br>(off) | \$0.69<br>(adj)<br>(off) |                 | \$2.49                 |

| <b>Group E</b>               | <b>Amount</b> | <b>Kroger</b> | <b>Walmart</b> | <b>Aldi</b>              | <b>Save-A-Lot</b> | <b>C&amp;E</b> | <b>Seaman's</b> |
|------------------------------|---------------|---------------|----------------|--------------------------|-------------------|----------------|-----------------|
| Corn Flakes (Kellogg's)      | 18 oz box     | \$3.29        | \$2.92         | \$1.19<br>(off)          | \$1.19<br>(off)   | \$4.69         | \$4.59          |
| Raisin Bran (Post)           | 20 oz box     | \$2.99        | \$2.50         | \$1.79<br>(off)          | \$1.79<br>(off)   | \$4.49         | \$4.49          |
| Vegetable Oil (store brand)  | 48 oz         | \$2.59        | \$2.08         | \$1.99                   | \$2.29            | \$4.39         | \$3.99          |
| Wheat Bread (store brand)    | 1 lb loaf     | \$1.39        | \$1.34         | \$0.99                   | \$1.39            | \$1.99         | \$2.29          |
| Buns (sandwich, store brand) | 8 count pkg   | \$0.88        | \$1.13         | \$0.85                   | \$0.99            | \$2.09         | \$1.19          |
| Spaghetti (Barilla)          | 1 lb box      | \$1.79        | \$1.32         | \$0.79<br>(adj)<br>(off) | \$0.99<br>(off)   | \$1.79         | \$1.59          |
| English Muffins (Thomas)     | 6 count pkg   | \$2.99        | \$2.00         |                          |                   |                | \$1.55<br>(off) |

| Group F  | Amount   | Kroger  | Walmart | Aldi  | Save-A-Lot        | C&E   | Seamans         |
|--|----------|---------|---------|---|-------------------|---|-----------------|
| Baby Formula<br>(Similac, Isomil<br>Advanced Soy)          | 12.9 oz  | \$13.40 | \$13.17 |   | \$13.99           | \$15.39   | \$17.59         |
| Toothpaste<br>(Colgate Total<br>Whitening)                 | 4.2 oz   | \$2.99  | \$3.26  | \$1.60<br>(adj)                                 | \$1.54<br>(adj)   | \$4.19<br>(Crest)   | \$3.59          |
| Tampons<br>(Tampax<br>Regular)                             | 20 count | \$3.45  | \$3.28  |   | \$4.69<br>(Pearl) | \$6.18<br>(adj)   | \$5.18<br>(adj) |
| Lemonade Mix<br>(Country Time)                             | 19 oz    | \$3.99  | \$1.96  | \$1.49<br>(off)                                 | \$1.79<br>(off)   | \$4.19  | \$2.99          |
| Toilet Paper<br>(Angel Soft, 176<br>sheets/roll, 2<br>ply) | 4 rolls  | \$1.28  | \$1.34  | \$2.29<br>4 pack of<br>1000<br>sheets, 1<br>ply | \$1.29            | \$1.15<br>Scott, 1<br>roll of<br>1000<br>sheets, 1<br>ply | \$1.89          |

Key:

(Adjusted) – package size adjusted for price

(Brand Name) – brand used for pricing (specified brand not available)