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"Wake Up the Knowledge That You Have": An Assessment of Community Food Security in Fellsmere, Florida

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"Wake Up the Knowledge That You Have":

An Assessment of Community Food Security in Fellsmere, Florida

by

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Abstract

In the global industrial agricultural system many people lack access to high-quality nutritious foods and food production techniques are often inefficient and reliant on harsh chemical inputs. While numerous strategies exist to address the disparities present in the global food system, increasingly researchers and practitioners are looking to local food systems for solutions to strengthen community food security (CFS). CFS emphasizes small-scale production strategies such as farmer's markets, community gardens, and consumer supported agriculture. As these efforts evolve, research is needed to understand how these strategies affect communities. To explore a local CFS initiative, qualitative data were collected from community garden participants in Fellsmere, Florida, contextualized by participant observation. Interviews (N=9) focused on household and community nutritional concerns and the impacts of community gardening on diet quality and food security. Further, quantitative data were collected on the Fellsmere food environment using the USDA Thrifty Food Plan in six local food stores. Individual and household food security, the ability to obtain enough food to live a healthy life, was assessed using a food access and security survey (N=30). Results suggest that the Fellsmere food environment is lacking in the high-quality foods that participants' desire. Additionally, interview data suggests that participants want more control over their food production systems. This thesis provides a case study for better understanding what factors affect community members' perceptions of community food security.

Chapter One: Introduction

How we grow our food in the United States is indicative of both our social and environmental health. Rapid changes in the agricultural sector over the last century, such as increased mechanization (Kremen et al. 2012; Pollan 2008), the use of nitrogen based fertilizers and petroleum based pesticides (Kremen et al. 2012; Pollan 2008; Weis 2010), and monoculture (Pollan 2008), have drastically altered our social and physical landscapes. The predominant form of agriculture in the United States, industrial agriculture, is dependent upon several core practices that are not only problematic but detrimental to individual, community, and national wellbeing. Data are presented on the Fellsmere Community Garden, a case study that explores how sustainable agriculture practices affect community food security (CFS) and serve as an example for future small-scale agricultural efforts. CFS is an interdisciplinary framework created to promote the provision of socially acceptable, nutritious foods to all residents of a community through sustainable and equitable growing and distribution methods, including community gardens, farmer's markets, and organic farming (Hamm and Bellows 2003). Importantly, this research aims to incorporate an anthropological perspective into CFS in order to ground the framework within the ethnographic realities of community members. The data and results presented in this thesis are based upon research conducted from May-December 2013 that examines the affects of a community garden supported by the Farmworker Association of Florida (FWAF) on CFS in Fellsmere, Florida. Mixed methods were used to elicit information on the Fellsmere food environment, household food behaviors, the benefits and challenges of gardening, and previous gardening/agricultural knowledge in the community in order to meet the

following research objectives:

- to assess community food security through the use of multiple methods;
- to identify the factors that affect community food security in Fellsmere, such as environmental knowledge, participation in small-scale gardening, and the local food environment; and
- to contribute to the building of a distinctly *anthropological CFS theory*.

Based on the current literature and the research objectives, the following are the research questions for this project.

RQ1. How does the FWAF's activities affect food security at the individual and household levels?

RQ2. What barriers and facilitators are there in Fellsmere for community food security?

RQ3. How do gardeners and non-gardeners differ in their experiences of food security?

RQ4. How do farmworkers and non-farmworkers differ in their experiences of food security?

RQ5. What are the perceived benefits and challenges of gardening in Fellsmere?

Research Site

This thesis research was conducted in Fellsmere, a town on the east coast of Florida with approximately 5,000 residents, the majority of whom self identify as Hispanic (81.1 percent) and speak a language other than English at home (82.1 percent) ("State and County Quickfacts: Fellsmere (City), Florida" 2013). Fellsmere has a long agricultural history, first, as sugar and citrus giants in the early part of the 20th century—the only sugar refinery in the state of Florida was once located in Fellsmere (Patterson 1997)—and now as part of the modern day conventional citrus industry.

When I first visited Fellsmere in March of 2013 to meet with members of the Farmworker Association of Florida to talk about the possibility of doing an internship and research project in the community, I was struck by two key elements of the Fellsmere landscape—the swamps and citrus groves that line the main road off highway 60 into town. On a warm day, as I passed fishermen boat trailers and trucks that lined the small road, the smell of fertilizer began to drift into my car the further in I drove, and both sides of the street were lined with citrus groves. On other nights, as I traveled back to Tampa after staying the weekend during my internship, I would drive through clouds of mosquitos, see all varieties of road kill, and witness men trying to cajole an alligator off the highway. Much of rural Florida is like this, a strange mix of industrial agriculture and swampland. I spent a great deal of my time driving to and from Fellsmere trying to reconcile and make sense of the airboats that parade through Fellsmere on the weekend with the school buses full of men I passed in the wee morning hours—the men traveling to anonymous fields and groves across Florida.

I sought out this particular research opportunity because of my previous experiences working as a residential volunteer and later an intern on an educational farm and community supported agriculture farm (CSA) prior to entering graduate school. In my experience, despite the personal ideologies and values of those around me, the knowledge surrounding the sustainable agriculture movement and the literal fruits of our labor did not always reach communities with limited availability of and access to fresh foods. I felt compelled to work as an intern and do research in a community that embraced the work of sustainable agriculture and sought to explicitly supply produce to community members in order to improve access to locally grown foods and promote health. The Fellsmere Community Garden is a perfect site for such inquiries; the garden sits at the intersection between industrial agriculture and sustainable

agriculture. Leadership and members are linked to the farmworker community in Fellsmere through their personal experiences or the experiences of their family members in the surrounding citrus groves and other farm fields across the United States. During my time in Fellsmere, it became evident to me that this is a very tight-knit community with a great deal of agricultural knowledge and skill. Many of the Fellsmere Community Garden members share social ties outside of the garden, through friendships and familial relationships, and the majority of members are actively engaged in agricultural work or gardening.

The community garden is sponsored by the FWAF. As of May 2, 2013, the FWAF listed on its website the following mission and vision, "to build power among farmworker and rural low-income communities to respond to and gain control over the social, political, workplace, economic, health, and environmental justice issues that impact their lives." The garden is comprised of two city-provided pieces of land. Garden site #1 (see Figure 1.1) is exclusively communally gardened, and garden site #2 (see Figure 1.2) is both communally and individually gardened.

Figure 1.1. Garden Site #1: Communal Plots.

Figure 1.2. Garden Site #2: Individual Plots.

The communal plots are typically larger plantings of one crop. For example, garden site #1 may have several rows or an entire section of the garden dedicated to only tomatillos or squash. In garden site #2, members garden individual plots that resemble what is typically associated with community gardens. Members have the choice to belong to one or both of the garden sites. Member dues are $30.00 annually. The core group of garden members, referred to as the garden decision-making committee, creates and implements rules and regulations. Since the gardens' inception in 2010, members have received over forty trainings on diverse gardening topics. Workshops and trainings by the extension office and other organizations have been essential to the community gardens development of pest control techniques and administrative tasks. Produce from the garden is distributed to the community through multiple channels. Community garden members share produce with their family and friends, and FWAF office visitors. Excess produce is sold at a local farmer's market and to local food places. The leadership estimates, based on garden records (see Figure 1.3), that the garden produces over a 1,000 pounds of produce that reaches more than 100 families annually. Further, steps are being

Figure 1.3. Record Keeping: Member Work and Harvest Log.

taken to expand the gardens' reach through participation in a farmer's market and the creation of a logo that will be used to distinguish community garden products from other products in the local stores and at the farmer's market. Also of note, the Fellsmere garden is the model for several community gardens the FWAF is starting in other farmworker communities in Florida.

Theoretical Framework

An examination of the potential benefits and barriers to achieving CFS in marginalized communities is crucial to the development of more *culturally* appropriate and *relevant* food systems (Mader and Busse 2011). CFS is defined as "a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self reliance and social justice for public policy initiatives" (Hamm and Bellows 2003:37). Identifying food system strategies that provide foods that are culturally appropriate and produced sustainably is the conceptual meat and potatoes of the research questions and objectives for this thesis. Food system strategies that do not emphasize culture and sustainability lack the capacity to identify and utilize the strengths and assets that already exist in communities. Theories from both anthropology and public health are

needed to augment our understanding of how people operate within the CFS framework and which socio-cultural factors are important. The political economy of health model, a touchstone in nutritional anthropology (see Leatherman 1996; Crooks 1998 for examples) "can be used to study the impact of the social structural factors on food availability, access, and consumption" (Himmelgreen and Crooks 2005: 160). Political economy is aptly suited to evaluate one of the strongest criticisms against CFS—the embrace of market-based principles that reinforce neoliberal relations between consumers and producers (Alkon and Mares 2012). At first glace, political economy and the critiques of CFS seem to be too similar to be useful. However, upon the reflection of Ortner's (1984) description of the political economist, "their work tends to focus on the symbols involved in the development of class or group identity, in the context of political/economic struggles of one sort or other" (142) the contributions that political economy can make to the building of a CFS framework that is equitable and just is clear. Political economy offers a lens to evaluate the impacts of market participation and attend to how group identity and class shape community members' involvement with CFS strategies. Another critique levied against CFS is the complete absence of any guiding theory or standardized methods to measure CFS (Anderson and Cook 1999). Strategies associated with CFS include both market and non-market based activities—such as farmer's markets, CSAs, traditional nutritional assistance, and gardens. Anderson and Cook (1999) call for research that evaluates the efficacy of these community-based strategies on individual and household food security. In order to address these deficits in the CFS framework, the socio-ecological model (SEM) will be used to illustrate what aspects of CFS are working well and what aspects are falling short. SEM is a public health framework that positions health and wellbeing within the influence of intrapersonal, interpersonal, community, organizational, and policy factors (McLeroy et al.

1988). The research conducted with the Fellsmere garden serves as a case study for understanding how community food security is affected at multiple levels of the SEM by small-scale gardening initiatives. Specifically, the research design, including the interview guide, food security and access survey, and food store survey, explores how different levels of the SEM impact CFS. For example, the interview guide was explicitly organized to probe for CFS factors at community, household, and individual levels (see Chapter Three: Methods, Table 3.2). Further, the findings will contribute to an explicitly *anthropological CFS framework.*

Outline of Chapters

I will briefly describe and introduce each chapter. In Chapter 2, I review the macro-level issues that create inequality in our industrial agriculture system and how these issues impact farmworker food security. Possible solutions to environmental and food access problems are then explored in the literature on CFS, food sovereignty, and community gardens. Next, I describe the mixed methods (qualitative and quantitative) used in the study and the analytical plan in Chapter 3. In Chapter 4, I present the results from the study in two sections. The first section focuses on data from the qualitative interviews and the second on the quantitative results. Thereafter, I triangulate the findings and contextualize them with the data from my participant observation. In Chapter 5, I discuss the findings from my research in the context of the current CFS literature, describe the limitations of the study, provide suggestions for future research, and conclude with recommendations for an explicitly anthropological community food security.

Chapter Two: Background

Key Issue 1: Industrial Agriculture

The root problems faced in the production of food in the United States are the result of failures in multiple global systems, including the economic and political systems that support free trade and industrial agriculture monopolies (Bacon 2005; Gonzalez 2004). Unfortunately, as will be demonstrated, this failure has resulted in a broken national and international food system that endangers the environment, human health, and food security (Gonzalez 2004).

Trade liberalization links U.S. food production to economic and political processes across the globe (Anderson and Bellows 2012). Neoliberal international trade agreements and international organizations, such as the International Monetary Fund, the World Trade Organization and the World Bank, promote country exports of agricultural products in lieu of local production and control over food (Gonzalez 2004). Proponents of neoliberal trade argue that lifting tariffs and opening the food market to competition lowers food prices; however, this interpretation of the global industrialized food system ignores the economic strains put on small farmers as a result of shifting economies that lead to the delocalization of food production (Gonzalez 2004; Rossett 2008). Many subsistence farmers have changed their production from the cultivation of diversified crops to growing only one or two market crops (Gonzalez 2004). This change results in adverse outcomes for individuals and communities, including less diverse diets, market dependency on imported goods and foods, and increased competition for small farmers (Gonzalez 2004; Rossett 2008).

Industrial agriculture is reliant on expensive and unsustainable animal, human, and chemical inputs (Gonzalez 2004). Alarmingly, much of the world's food supply is not used to feed people. For example, over half of the world crops are now used *only* to feed livestock and/or are transformed into biofuels that are used in transportation (Pollan 2008). As a result, *only* half of the crops produced in the world *actually* feed people. This is extremely troubling considering the inefficiency and poor energy exchange ratio of the food sector. Many countries now grow crops explicitly for the purpose of refining them into fuel, such as cassava, sugar beet, sweet sorghum, and wheat (Food and Agriculture Organization of the United Nations 2008). The two largest biofuel producers in the world are the United States and Brazil, which convert maize and sugarcane, respectively, into ethanol (Food and Agriculture Organization of the United Nations 2008).

The United States food system consumes 19 percent of fossil fuels—second only to transportation—and for every ten calories of fossil fuels used in production, *only* one food calorie is created for human consumption (Pollan 2008). Additionally, there has been much attention directed towards the environmental damage that is created during the production, transportation, and consumption of these foods (Horrigan et al. 2002). Industrial agriculture has been credited with contributing to soil erosion and salinization (Weis 2010), the loss of biodiversity at an rapid rate (Weis 2010; Veteto 2008), and 37 percent of greenhouse gas emissions (Weis 2010; Pollan 2008), as well as degrading the water supply—irrigation accounts for 62 percent of all freshwater withdrawals in the United States (Kenny et al. 2009) and degrading natural systems such as pollination and soil formation (Weis 2010).

Additionally, industrial agriculture has serious social ramifications. For example, most farmworkers are paid low wages and exposed to harmful pesticides (Reeves and Schafer 2003).

In 2007, the United States used 22 percent of all pesticides on the world market (Grube et al. 2011) in numerous industries including agriculture. Many of these pesticides were applied in our agricultural fields by farmworkers and allowed to leach into nearby water and soil. Further, energy-dense, high-calorie inexpensive foods are the staple of our food supply and diets (Drewnowski and Darmon 2005; Heynen et al. 2012). A similar pattern is emerging globally as part of the nutrition transition with the adoption of a Western diet with increased consumption of refined carbohydrates, sugar, fats, and animal products (Himmelgreen et al. 2014). However, according to Himmelgreen et al. (2014), the nutrition transition does not account for all of the dynamic forces that shape diet. Rather, a bio-cultural perspective is needed to consider "the influence of social class, race and ethnicity, and power and agency on" dietary change (2). Unfortunately, the true costs of cheap, nutrient-poor foods remain hidden. The most prevalent chronic diseases are attributable to lifestyle-related diet changes (Who, Joint, & F. A. O. Expert Consultation 2003). Obesity rates have almost doubled worldwide since 1980 and contribute to other non-communicable diseases such as cardiovascular disease (CVD), diabetes, cancer, and muscoskeletal disorders ("Obesity and overweight" 2013). CVD is the leading cause of death worldwide and led to 17.3 million deaths in 2008 ("Cardiovascular diseases (CVDs)" 2013). Further, the price of food, *i.e.* the inexpensive foods referenced above, is not the only determinant for a community's access to fast and inexpensive food products. Geographic location, race, and income also dictate community—*often unequal*—access to healthy, fresh foods (Heynen et al. 2012; Mader and Busse 2011). In 2013, an estimated 14.5 percent of Americans were food insecure (Coleman-Jensen et al. 2013), "that is, they were, at times, unable to acquire adequate food for one or more household members because they had insufficient money and other resources for food" (6-8). While our global food system has the capacity to

produce energy for livestock and transportation, it falls short in delivering food to the hungry.

Key Issue 2: Food Security and Farmworker Food Security

For the purposes of this thesis, the definition of food insecurity presented above is used throughout the chapters to reference a lack of high quality, nutritious, socially acceptable food accessible in households and communities across the United States and globally. Conversely, the term food security is used to denote the exact opposite. According to Coleman-Jensen et al. (2013) food security is, "access by all people at all times to enough food for an active, healthy life... [and is] one of several conditions necessary for a population to be healthy and well nourished" (2). One of the most commonly used measures of food security at the household level is the 18-item Household Food Security Survey Module (HFSSM), a tool developed by the USDA to categorize households into high, marginal, low and very low experiences of food security ("Definitions of Food Security" 2012). The questions that comprise the module elicit information on quality, quantity, variety, and the social acceptability of food intake ("Food security in the U.S." 2013). While food security is the result of numerous multilevel factors at work, the majority of current literature on farmworker food security focuses inquiry and analysis at the individual/household level. Given the complexities of distinguishing migrant, seasonal, and permanent farmworkers from one another, no distinctions are made here. Clearly, the residential status of farmworkers is an important factor that may affect food security status and is worthy of discussion.

In 2012, an estimated 27.2 percent of Hispanic households were food insecure (Coleman-Jensen et al. 2013, 15). While these numbers are high, and many farmworkers are Hispanic (Weigel et al. 2007), they do not necessarily accurately depict food security rates for farmworkers. Estimates of farmworker food insecurity are generally much higher, ranging

anywhere from 45-98 percent (Weigel et al. 2007; Wirth et al. 2007; Quandt et al. 2004; Hill et al. 2011; Kilanowski 2012). Quandt et al. (2004) report that food insecurity rates among at-risk populations are often higher than national averages, and state that "the rate of food insecurity in these immigrant populations was more than seven times that of the general population" (569). Conversely, Cason et al. (2003) report that the food security of their participants, a sample of migrant farmworkers from across five counties in Pennsylvania, had actually increased since childhood. The authors collected information on food security, intake, preference, and barriers through a survey, a 24-hour dietary recall, and focus groups. As part of the survey, participants were administered the 18-item HFSSM; 91.8 percent of households surveyed were food secure. Upon inspection of 24-hour dietary recall data, the authors found gaps in nutrient intake. The participants reported very low consumption of fruits, vegetables, and dairy products and high consumption of carbohydrates. Over half (60.2 percent) of participants consumed six to twelve servings of breads and/or cereals in one day. The authors speculate that tortillas are eaten at every meal and account for the high number of bread and cereal servings.

According to Hill et al. (2011), there are no clear predictors for farmworker food insecurity. Yet, one predictor is evident in multiple articles: households with children are more likely to experience food insecurity (Quandt et al. 2004; Weigel et al. 2007; Hill et al. 2011). Hill et al. (2011) administered the 18-item HFSSM to 460 participants as part of the annual South Georgia Farmworker Health Project. The authors also found a lack of transportation and cooking facilities to be risk factors. In addition, Cason et al. (2003) report that participants discussed a lack of transportation and income as barriers to healthy eating. Similarly, focus group participants noted the prevalence of weight gain since moving to the U.S. and an increase in fast food and junk food consumption. Wirth et al. (2007) collected data from farmworkers in

Fresno County California on food security, dietary intake, and barriers to good nutrition. Results from a survey, which included the 18-item HFSSM, indicated two strong predictors for food insecurity in the sample: income and documentation status. While low income was the most powerful variable associated with food insecurity, undocumented workers were more likely to be food insecure than their documented counterparts. In general, the dietary intake data indicated that participants had diets high in fat and low in fruit and vegetable consumption. Further, focus group participants reported that a lack of time to cook because of work was a barrier to healthy eating. In addition, Borre et al. (2010) assessed the food security status, dietary intake, and nutritional concerns of 36 farmworker families in eastern North Carolina. The assessment included a survey with the 18-item HFSSM and interviews. High rates of food insecurity were found in adults (63.8 percent) and children (56 percent). Interestingly, families that spent a higher percentage of their income on food were less likely to be food insecure. Further, migration to the United States was related to the increased consumption of unhealthy foods such as soda and processed food (451). Many participants were concerned about the development of obesity for themselves and their children.

Weight gain, obesity and related health issues were reported in other studies as well. In one study, 48 percent of children sampled were classified as overweight or obese (Kilanowski 2012). However, the author reports that overweight and obesity in migrant farmworker children was just as likely for those who demonstrated low and high acculturation. Weigel et al. (2007) report that obesity and related illnesses, such as type 2 diabetes, hypertension, and hyperlipedmia, and central body adiposity, and poor mental health outcomes are common to farmworkers. In another sample of farmworkers, 60 percent were found to be obese with high rates of hypertension and diabetes (Kowalski et al. 1999).

Specific nutritional deficiencies also exist in farmworker communities. Kowalski et al. (1999) found 25 percent of the women in a Michigan farmworker sample were anemic. Further, women consumed less fruits, vegetables, and dairy than their male counterparts. Of particular concern among farmworkers are low levels of vitamin A, vitamin C, and calcium (Kowalski 1999). The authors recommended an increase in fruit and vegetable consumption—similar to the recommendations of Cason et al. (2003)—and foods high in vitamin C, calcium, protein, and iron. However, the work of Locke et al. (2009) among Hispanic farmworkers and non-farmworkers of the Yakima Valley in Washington found that the farmworkers had greater access to fruits and vegetables during their peak seasons compared to the non-farmworker participants.

Of the articles reviewed, several addressed the use of home gardening by farmworkers. Interestingly, Quandt et al. (2004) found that hunting—not gardening—was positively associated with food security. In spite of this, the authors still recommend community gardens as a strategy to address food insecurity in farmworker communities.

Proposed Solutions to Key Issue 1: Community Food Security and Food Sovereignty

Increasingly, the relationships between how we grow our food and poor nutrition, environmental degradation, and hunger have become clearer (Pothukuchi 2004). Simultaneously, national attention has been drawn to the poor working conditions and endemic poverty farmworkers experience. This attention is related to, and dependent upon, national discussions on food and environmental justice. In response to the disparities industrial agriculture creates and reinforces, many call for localized, small-scale agricultural solutions.

Case Studies

While little academic research exists on initiatives similar to the Fellsmere Community Garden, two studies were identified that focus primarily on farmworker community gardens.

Minkoff-Zern (2012) presents ethnographic research conducted over a year and a half with farmworkers and food assistance providers in California. The farmworkers included in the study were members of the Oaxaca Children's Garden, a community garden that was developed as an extension of an immigrant community organization, the Oaxacan Cultural Project. The garden members and the food assistance providers were interviewed for the study. Findings indicated that the farmworkers already possessed agrarian knowledge and culinary practices. Minkoff-Zern (2012) positioned the farmworkers' previous experiences as assets to building food security. This finding was starkly contrasted with the recommendations of food assistance practitioners who focused only on traditional nutrition education. The food assistance providers did not account for the skills and nutritional knowledge some farmworkers' communities may already possess. Further, garden members reported cost savings and the ability to eat fresh, organic foods as participation benefits. Similarly, Carney et al. (2012) present findings from a community based participatory research (CBPR) project, *Harvest Fiesta*, with 38 farmworker households in Oregon. The project supports family and community gardens as a means to increase food security and fruit and vegetable availability in the community. The authors conducted interviews with key informants and pre and post garden surveys with garden participants. The survey findings suggest increased food security and fruit and vegetable intake among both children and adults as a result of garden participation. Participants also reported that gardening strengthened their family relationships and that they enjoyed "showing our kids the love of the land who feeds us" (879). Key informant interviews also suggest that the gardens serve as a way for participants to "[carry] on the traditions from their home country" (878). Still, more research is needed on farmworker community interventions that seek to increase food security or access through the use of CFS strategies—a model that stresses the importance of

local sustainable production to ameliorate inequality and hunger such as community gardens, CSA, and farmer's markets. These strategies may be especially relevant to increase food security and access among immigrants (and explicitly, farmworkers) who bring environmental knowledge and skills with them from their home countries (Shavaa et al. 2010; Quandt et al. 2004).

Fortunately, applied anthropologists possess the skills that are needed to study how cultural knowledge can transcend geography in order to shape food security and access at local levels. The skills and training of applied anthropologists are relevant to engaged food system research. We have the capacity to contribute to building more just and sustainable food systems through work as cultural brokers who not only engage key stakeholders but also utilize layperson expertise. Further, we have the skills to build academic-community partnerships through collaborations with educational institutions, citizen groups, and non-for-profit organizations (Checker 2007; Haenn and Casagrande 2007; Society for Applied Anthropology N.d.; Lamphere 2004).

Differences Between Community Food Security and Food Justice/Sovereignty

Despite the attention that local agricultural practices, such as community gardens, farmer's markets, and CSAs, have garnered in the last decade, there is a lack of agreement when it comes to which theoretical orientations are best for addressing the problems with the global industrial food system. The following paragraphs review the differences between community food security and food justice/sovereignty.

CSF developed from the global food security framework during the 1970's and individual-household food security frameworks during the 1980's (Heyne et al. 2012). Notably, CFS positions the community level of inquiry and action as central to individual and household

food security. The differences between CFS and other interpretations of food security are clearly articulated by Hamm and Bellows (2003), "although it shares a focus on health, sustainability, social justice, and community self-reliance from other sources, CSF addresses *communities* of households and individuals, not just the latter two" (38).

Advocates of food justice/sovereignty (Alkon and Mares 2012; Anderson and Bellows 2012; Heynen et al. 2005) and civic agriculture (DeLind 2002; DeLind 2011) call for approaches that deemphasize relations that reinforce the inequalities that free market principles create. Food sovereignty ideologies grew out of the "International Peasant Movement" and "prioritizes production for local and domestic markets, demands fair prices for food producers, and emphasizes community control over productive resources such as land, water, and seeds" Alkon and Mares 2012: 347). In the United States, food justice, a theoretical extension of food sovereignty, attempts to incorporate these ideologies within the context of our food landscape and unveil "the multiple ways that racial and economic inequalities are embedded within the production, distribution, and consumption of food" (348). Many of these advocates criticize the use of CFS as an applicable framework because it promotes producer-consumer relations above other considerations, such as food as a universal right and the cultural meanings of food (Heynen et al. 2012; Delind 2002). While many of these schools of thought overlap, the primary distinction between food sovereignty/CFS, and more traditional measures of food security is that the latter usually denotes a specific research methodology. Food sovereignty and CFS are more ideologically oriented; however, food security research has also demonstrated a great capacity for incorporating concerns over how power, inequality, and globalization shape access to food (for examples, see Hadley and Patil 2006; Himmelgreen et al. 2006).

I suggest that in spite of the heavy criticisms of CFS, perhaps a middle ground that is informed by applied anthropological methods and theory can be reached. Regardless of ideological orientations, many communities simply do not have the capacity to remove themselves from market-oriented systems. The middle ground I propose is to enhance CFS through an ethnographically-grounded understanding of cultural meanings of and relationships to food. Specifically, ethnographic methods need to be included before, during, and after CFS strategies are implemented in order to evaluate the appropriateness and efficacy of specific strategies in communities. In each stage, the perceptions and experiences of community members are vital to building food systems that communities want, and thus, will use. Many of the food sovereignty priorities, such as the emphasis on local production, fair prices for producers, and community control over environmental resources (Alkon and Mares 2012), can also be embedded within CFS strategies. Further, this middle ground also includes adapting what Pothukuchi (2004) offers as an alternative (357) to the three primary food streams she describes in the United States; the alternative is "characterized by closer regional connections between producers, processors, and consumers." The three primary food steams include: 1) the market-oriented food system, 2) charitable food assistance, and 3) governmental food assistance programs. However, it is plausible that all three of these streams could include the distributions of foods provided through CFS strategies, such as farmer's markets and CSA models.

Community Food Security Measurement

Measurement of CFS seems to vary greatly, and while many authors make recommendations for assessment, currently there are no standardized tools for measurement (Anderson and Cook 1999). However, the USDA and the Community Food Security Coalition have open access tools to evaluate CFS projects and community food environments (Hamm and

Bellows 2003). The USDA includes measures to assess food security at the household level and the much broader community level (including food assistance programs and the affordability and availability of foods in a specific locale) using both qualitative—a focus group guide—and quantitative measures—the USDA Thrifty Food List Store Survey (Cohen 2002). In an effort to develop quantitative measures for CFS, Tchumtchoua and Lopez (2005) evaluated how 38 indicators influence CFS in a town-level assessment of 169 communities in Connecticut. The authors used indicators that collect information on areas recommended by Cohen (2002): socio demographic and economic characteristics, food security, community food resources (i.e. soup kitchens, food pantries, farms) and transportation availability (27). Towns were ranked using Spearman's rank correlation tests. The most significant findings suggest that the towns with the highest rates of poverty and, inversely, the lowest wealth were less community food secure. Similarly, towns with "vulnerable household structure," these included households with more children, single female heads of household, and elderly with low education, were also less community food secure. Transportation availability was also found to have a highly significant relationship with the level of CFS; the more transportation available, the higher CFS. Towns with higher expenditures for food assistance, more private food provisioning, and more food production resources were more food secure than their counterparts. Bletzacker et al. (2009) used the same 38 indicators to rank communities in eight counties in Southeastern Appalachian Ohio and reported similar findings. Poverty is also associated with lower CFS as is higher expenditures on food services per student, proximity to food assistance offices, and female head of households. Additionally, Bletzacker et al. (2009) report that wealthier communities with high Food Stamp Program participation were more community food secure.

The 18-item HFSSM is the most commonly used measure of household food security. Participants are ranked along a continuum based on their responses to the questions. The following is a description of the food security definitions used by the United States Department of Agriculture, Economic Research Services. High food security occurs when a household is able to access the foods they desire without any anxieties or problems. In contrast, households with marginal food security have issues in accessing foods, but the quality, quantity, and variety of intake is not meaningfully affected. Further, low food security occurs when a household's ability to consume the quality, variety, and social desirability of foods they want is reduced but the quantity and eating patterns are not disrupted. At the extreme end of the spectrum, very low food security is typified by disruptions in eating patterns and reduced food intake because of a household's lack of money or other resources ("Food security in the U.S." 2013).

CFS was explicitly chosen as a framework to facilitate this project because of its relevance to the activities of the FWAF and amenability to include anthropological theory. The FWAF and CFS both use systems approaches to increase food security at multiple levels including the individual, household, and community levels. CFS and the FWAF both seek to build local capacity. The FWAF is implementing multiple strategies encouraged by CFS proponents. Further, a shortened version of the 18-item HFSSM was also used to capture quantifiable, rigorous data on household food security status.

Proposed Solutions to Key Issue 2— Increase Community Food Security: Gardens

Proponents of CFS advocate for multiple types of solutions. One of the smallest-scale solutions, community gardens may be very beneficial for communities. Special attention is given to community gardens here as a CFS strategy because of their relevance to the Fellsmere Community Garden and the activities of the FWAF. The literature on community gardens

suggests that they are culturally constructed spaces filled with social and cultural meaning. As will be demonstrated below, gardens also confer multiple physical and emotional benefits to participants.

Community Gardens

Community gardening has enjoyed a resurgence of interest since the 1970's due to rising food prices and a public desire to embrace sustainable food practices (Draper and Freedman 2010; Firth et al. 2011). However, the roots of community gardens are found in the late 19th century. Community gardens developed prior to World War I "as a result of the social, environmental, and economic climates of the time, school gardens and vacant-lot cultivation projects began to take form" (Draper and Freedman 2010:459). Today, these factors are the same impetus for the formation of many community gardens across the nation. Community gardens were originally targeted towards marginalized groups, such as immigrants, the poor, and children (Draper and Freedman 2010). Similarly, many of these same groups benefit from modern garden initiatives that focus on community development and health and nutrition promotion. Draper and Freedman (2010) reiterate this point:

> The published literature demonstrates how community gardens can serve as a powerful tool to help fulfill the overall mission of social work: to enhance the basic needs of all people, especially the vulnerable, oppressed, and impoverished (486).

However, the definitions of the terms *community* and *community gardens* remain unclear in the literature. Firth et al. (2011) hone in on the vagueness of the term 'community' by explaining the following:

> Some authors have now started to problematise the use of the term "community", especially with reference to community gardens, on the basis that it is not always clear whether community gardens are run for the community, by the community, or that they just happen to be located in certain communities. (2011: 557)

The authors also list a multitude of garden 'types' that fall within the domain of community gardens, such as school and prison gardens, collective gardens in public spaces, and individual plot cultivation. The lack of clarity for the term *community garden* may be in part due to the multiple variations of gardens that exist. Further, the absence of clear definitions and boundaries within and between CFS and food sovereignty reinforces the vagueness of the terms *community* and *community garden*. Very broad initiatives and strategies fall under the CFS and food sovereignty umbrella to address problems of poverty, social injustice, and food security.

Research on community gardens in the United States demonstrates a wide variety of benefits to community garden members, such as increased fruit and vegetable consumption (Flanigan and Varma 2006) and increased social support (Glover 2004). Despite these findings, Heynen et al. (2012) report that there is a dearth of evidence to support that urban agriculture—which often includes community gardens—increases food security. Conversely, Baker et al. (2013) found that half of the participants who were identified as food insecure reported that they were better able to provide food for their families as a result of community garden participation. Clear gaps exist in community garden literature on if and how community gardens affect food security. Further, in a review of community garden literature, Draper and Freedman (2010) report that most community garden research is very narrow and primarily focuses on gardens that serve the youth and Caucasian communities. More research is needed on how community gardens affect food security status and with more diverse populations.

In addition to research that exclusively explores community gardens, there is also a strand of literature that specifically explores immigrant gardening. Tidball and Krasny (2007) call for assets based development—including the knowledge of immigrant gardeners—to build on existing community capital. Further, Shavaa et al. (2010) demonstrate that community gardens

are a place for immigrants to use and apply the agricultural knowledge they bring with them from their country of origin. The inclusion of immigrant agricultural knowledge into our food system serves several purposes: to increase community resilience (Tidball and Krasny 2007), utilize existing local knowledge (Shavaa et al. 2010), and give participants a sense of belonging (Morgan et al. 2005) and purpose (Airiess and Clawson 1994).

Physical benefits of community gardens. Community gardens are spaces that offer participants multiple health benefits, such as increased physical activity, fruit and vegetable consumption, emotional wellbeing, social capital, environmental stewardship, and social skill development among youth (Draper and Freedman 2010). Of the 53 articles reviewed by Draper and Freedman (2010), nearly half mentioned health benefits as a result of garden participation, including diet, physical activity, and mental health. Community gardens have garnered increased attention over the last several years as spaces conducive to relatively inexpensive health promotion activities. They are also spaces people are actively seeking in order to reconnect to what Firth and colleagues describe as "food, nature, and identity" (2011: 555).

Among the benefits of community gardens, particular attention has been paid to how they influence dietary change and food habits. Multiple studies have found an increase in fruit and vegetable consumption by garden participants, both in school gardens and community gardens (Alaimo et al. 2008; Baker et al. 2013; Flanigan and Varma 2006; McAleese and Rankin 2007; Meinen et al. 2012; Parmer et al. 2012). This finding is increasingly relevant for public health given the high rates of obesity and diet- related diseases in the United States. Flanigan and Varma (2006) found that the women who utilized the Women, Infants and Children (WIC) community garden in Albuquerque, New Mexico reported eating more vegetables. Similarly, Alaimo et al. (2008) found that respondents who had a family member who participated in a

community garden in the previous year were 1.4 times more likely to consume fruit and vegetables, and 3.5 times more likely to consume fruits and vegetables on at least five occasions throughout the day. Both studies suggest that community gardens offer exposure and access to healthy foods that may, in turn, increase intake of fruits and vegetables of participants and their family members. In a mixed methods study, Baker et al. (2013) collected surveys and conducted focus groups with predominantly African-American rural community garden members across four counties in Southern Missouri. Survey findings indicate that as a result of working in the garden, participants reportedly ate more fruit and vegetables (89 percent), ate less fast food (80 percent), were better able to provide food for their families (86 percent), and donate food to others (81 percent). Almost half of participants who were food insecure felt they were better able to provide food for their families as a result of garden participation.

Social capital and the 'community' in community gardens. In addition to the research that supports the physical benefits of community gardens, there is also a plethora of literature that discusses the effects of community gardens on "social capital" and community development. While the definition of social capital is contested across disciplines, Kingsley and Townsend (2006) note the widely used Putnam (1995) definition of social capital that embodies the "features of social organizations, such as networks, norms, and trust, that facilitate actions of cooperation for mutual benefit " (526). In community gardens these ideas are firmly rooted in 'place' which emphasizes how physical space can facilitate relationship building, Kingsley and Townsend (2006) state:

> The role of 'place' in generating social capital is relevant here. Altschuler et al. (2004) highlight the fact that access to amenities—in this case a community garden—affects social capital and social cohesion. Similarly, research by Armstrong (2000) indicates that, by providing a physical location for residents to meet other people and socialise, community gardens increase social networks, enhancing social support. (534)

Kingsley and Townsend (2006) found that participants of an urban community garden benefited from increased social cohesion, support and connections as a result of their involvement with the garden. However, they report that these increases in social capital were not extended towards relationships outside the garden. Interestingly, Glover (2004) found that the community garden facilitated a social network that extended beyond the garden among participants and strengthened relationships among neighbors. Glover (2004) presents participants' perceptions of how this works:

> a non-core group member, revealed, "Now I know people that I have things in common with." Ivan, a core group member, shared the same sentiment: "When you know them, find out something special about them, or maybe they shared something with you, you come together." The garden, in other words, encouraged people to grow closer by providing a collective initiative, as well as a physical space, in which they could socialize together, yet achieve other aims, too (e.g., combat crime). As she saw it, Kayla thought the garden brought "a bonding to the neighborhood . . . We started doing some socializing together. I think getting to know people builds a strong sense of trust."(150)

Community garden literature also clearly portrays gardens as spaces in which social hierarchies and unequal access to resources are reproduced. For example, Glover (2004) and Kingsley and Townsend (2006) speak of the "dark side of social capital," that is the inclusionary and exclusionary nature of group formation within community gardens. This is best highlighted by an example from Glover's research, in which he found that the community garden leadership decided to put a lock on the garden gate in order to keep members of the neighborhood from cutting through the garden at night. The lock signified a division between the garden and community despite claims that the garden was, in fact, a 'community' garden. As a result of the lock, members who were not identified by the leadership as central to the garden were denied access.

Community gardens are often marketed as spaces beneficial to the development of positive social interactions among community members. However Firth et al. (2011) point out that there is no standard measurement of social capital applied to research on community gardens. Often the data on social capital in community gardens is assessed from aggregated survey data, which makes uncovering specific social processes very difficult. Firth et al. (2011) and Glover (2004) compensate for this by using qualitative and ethnographic methods to understand the local realities of the gardens they study. Firth et al. (2011) interviewed various stakeholders at two different gardens. They interviewed garden managers, staff, volunteers and users about their motivations for participating, the history of the garden sites, and the garden collective's relationships with external organizations and other gardens in the community. The gardens are presented as case studies for understanding how social capital is built and maintained within community gardens. Additionally, Glover (2004) collected personal narratives from fourteen participants about the development of a neighborhood garden in order to "understand the experiences of community gardeners and their interpretations of the social processes that took place as their community garden developed over time" (148).

Gardens And Applied Anthropology

Applied anthropology, which is generally agreed upon to be the application of anthropological theory and methods to solve real-world problems (Van Willigen 2002), provides multiple avenues to address issues in community gardens. Several strands of anthropological literature address small-scale subsistence and home gardening outside the United States. For example, Romero-Daza et al. (2009) report on research in Lesotho with a non-governmental organization (NGO) initiating a sustainable agriculture program, specifically with home gardens. The authors suggest that applied anthropology methods and theories are able to augment the

activities of the NGO by acting as liaisons between participants and the organization. Qualitative methods were employed to understand why community participation in the program was low despite incentives. A lack of time was reported by participants as one of the largest barriers to garden participation and attendance at local gardening demonstrations. The specific garden design, implemented by a community organization, keyhole gardens, may have also become a sign of stigma. Local organizations in the area promoted keyhole gardens with HIV/AIDS patients. As a result, one participant clearly reported that a keyhole garden was an indicator for HIV/AIDS status. Further, some community members planted trench gardens, instead of keyhole gardens, which were more similar to local gardening methods. Romera-Daza et al. (2009) advocates for anthropological contributions to better understand what obstacles exist for garden participation:

> If these types of projects are to be successful at addressing food insecurity among the urban poor, it will be important to understand the myriad of factors influencing the decision to participate (or not) in homestead gardens, and anthropology can contribute significantly to the understanding of these factors. (35)

In addition, work by environmental anthropologists serves as models of how applied anthropology can contribute to the research on community gardens in the United States. Zarger (2008) argues for the relevance of childhood and environmental anthropological perspectives in understanding how children's experiences with nature influence emotional and intellectual growth and development. The author is part of a larger collaborative, the Tampa Bay Area Garden Research Project, which studies "the process, pedagogy, and impacts of school gardening in the Tampa Bay area"(2008: 8). Further, environmental anthropology offers several theoretical contributions towards better understanding the role of gardening in environmental outcomes. For example, according to Nazarea: "local knowledge and cultural memory are crucial for the

conservation of biodiversity because both serve as repositories of alternative choices that keep cultural and biological diversity flourishing" (2006:318). Community gardens are "places" in which not only social capital and community are built but also spaces in which people can connect to and revitalize our biological and agrarian pasts that nourish not only the body but also the environment. Gardeners share knowledge about plants, soil, and weather and, in turn, illustrate to what Nazarea speaks:

> local knowledge is experiential and embodied in everyday practice. It is not logically formulated apart from what makes sense from living day to day in one's environment; nor is it inscribed as a set of processes or rules…local knowledge is cosmos more than corpus, praxis, and pulse more than precision and plan. (2006: 323)

Further, Veteto, an environmental anthropologists, former farmer and director of the Southern Seed Legacy project, provides tangible evidence of Nazarea's ideas with the documentation of heirloom vegetable varieties in home gardens across the Appalachian region of North Carolina (Veteto 2008). Qualitative methods were used to collect information on heirloom varieties and to create a taxonomic scheme based on participant descriptions. Seeds were also collected from participants in order to conserve the seeds' biological information for the future. This preservation is much needed given that "America has lost an estimated 97% of the vegetable varieties that were commercially available in this country in 1903" (Veteto 2008: 121). In addition to research on gardening challenges and benefits, applied anthropologists are well poised to contribute to cultural and biological conservation in community gardens across the United States.

Chapter Conclusions

The current status quo of the industrial food system is both inefficient and unsustainable. We globally invest enormous inputs—fertilizers, pesticides, human labor, and fuel—into a

system that does not promote human or environmental health. Further, we are at a critical point in human history. In the 21st century we will experience more biodiversity losses, the growth of the largest human population, and a powerful globalized interdependence among communities, states, countries, and continents. While many proposed solutions and theoretical frameworks for how to best fix the food system exist, more research is needed to better understand which solutions and frameworks are appropriate for specific communities. Further, more tools need to be developed and tested to better measure CFS. Based on the findings of current research, community gardens offer a small-scale promising alternative to the dysfunction of the delocalized food system by resituating food production as a community-controlled endeavor. For such efforts to be successful, specific attention needs to be paid to the challenges of community garden initiatives in order to ensure community buy in, uptake, and participation. Additionally, applied anthropologists' possess skills that are useful in identifying and communicating these challenges and solutions to both lay and professional communities

Chapter Three: Methods

The data presented here were collected from May to December 2013 on the Fellsmere food environment, household food behaviors, the benefits and challenges of gardening, and previous gardening/agricultural knowledge in the community. Mixed methods were employed to accomplish the data collection (see Table 3.1 below), including participant observation, in-depth interviews, a food access and environment survey that included the Six-Item Household Food Security Survey Module (Six-Item HFSSM), and a food store survey. The data collection and analysis of each method are described in detail below.

Table 3.1. Research Questions and Methods

Research Question	Method
RQ1. How does the FWAF's activities affect food security at the individual and household levels?	Interviews
RQ2. What barriers and facilitators are there in Fellsmere for community food security?	Interviews Food Access and Security Survey Food Store Survey
RQ3. How do gardeners and non-gardeners differ in their experiences of food security?	Food Access and Security Survey
RQ4. How do farmworkers and non-farmworkers differ in their experiences of food security?	Food Access and Security Survey
RQ5. What are the perceived benefits and challenges of gardening in Fellsmere?	Interviews

Participant Observation: Data Collection

Participant observation took place during my time as an intern with the FWAF office in Fellsmere. From May to August 2013, I traveled to Fellsmere weekly to stay for the weekend. While there, I slept in the FWAF office that is housed in a residential duplex (see Figure 3.1). I was the first intern to work in this office. At first, the local community organizers were not sure what to do with me. However, as time progressed, the organizers became more comfortable asking me to complete specific tasks. I worked on projects for both the Fellsmere office and the

Figure 3.1. Fellsmere FWAF Office.

broader FWAF organization. I also assisted the FWAF office staff with multiple projects, including:

- compiling a business plan for the garden that included a chart depicting possible sales outlets for the garden produce,
- collecting data on garden inputs (human and financial resources) and garden outputs that will be used to analyze the three previous garden seasons,
- creating a budget for supplies needed to begin selling at a farmer's market,
- writing a letter of support for the community garden to use with possible donors,
- writing a small grant for start-up funding for the farmer's market supplies,
- creating a succession garden planting calendar,
- assisting in the ongoing logo development process for the garden, and

- assisting in the development of a Powerpoint on food security and food sovereignty for farmworker communities.

My intention upon beginning the internship was to work in the community garden as much as possible. However, this did not occur as I had originally planned because in Florida, despite the year round growing season, the summer is typically the off-season due to intense heat. Several garden members also used this time to travel home to Mexico. As a result, I worked in the garden only a handful of times but learned about the workings of the garden and FWAF office through the administrative and writing tasks. The summer also proved not to be an ideal time for data collection since many people were out of town. In addition, many of my data collection tools were translated by a third party, and this process took a bit longer than anticipated. The food store surveys and food access and security surveys were collected in the late summer and early fall, and all the interview data was collected in the late fall.

Participant Observation: Analysis

Participant observation notes were used to contextualize the findings from the other methods. While no formal textual analysis of the notes was conducted, the notes were continually reviewed for content alongside the other findings. Participant observation notes primarily focused on community garden and home gardening activities, including what was planted and grown, administrative workings of the community garden, and reflections on food store survey collection. My participant observation experiences allowed me to have a more contextualized approach to the quantitative analyses and interpretation.

Interviews: Data Collection

Interviews were conducted October to December 2013 with participants (n=9) who were recruited through snowball and purposive sampling. The majority of participants were recruited

through my weekly interactions with garden members and the Fellsmere FWAF office. The FWAF Fellsmere coordinator also assisted in collecting contact information from potential participants. The coordinator explained the project to potential participants on my behalf and requested permission to share their contact information with me (see Appendix A for interview recruitment materials). I contacted potential participants by telephone to schedule interview times. Interviews were conducted in several different locations, including participants homes, the FWAF office, and a local park. I moderated all the interviews with the exception of one interview during which a translator was used with a Spanish-only speaker. While I originally had intended to include more Spanish speakers in the sample, coordination with the translator and the participants proved challenging. Interviews ranged from fourteen minutes to over an hour. All participants provided consent according to the approved USF IRB protocol for the study (see Appendix A). Seven of the nine participants consented to the audio recording of the interviews. For the two participants who did not give consent, detailed notes were taken to substitute for full transcripts. Participants were also compensated in one of two ways. First, if participants were actively involved in the community garden, they were given the option of a work trade—I worked in the garden for an hour as a thank you for their participation. The second option allowed participants to choose from several seed packets as a thank you. Only two participants chose that I work in the garden as compensation, the other seven received seed packets (their choice of radish, carrot, and/or tomato seeds). All interview participants are connected to the Fellsmere Community Garden and have—in some capacity—worked in the garden as a member or a volunteer.

The interview guide explored perceptions of the local food environment, community and household nutritional concerns, and the motivations for gardening in the local community. See

Table 3.2 below for the interview guide. The questions were designed to be open-ended and semi-structured. An iterative approach was taken to the interview protocol, as themes emerged in one interview, they were explicitly included for inquiry in the next interview.

Table 3.2 Semi-structured Interview Guide

Food Access in the Fellsmere Community
Where does most of your food come from? Are you satisfied with these options?
Are there any foods that you would like to have more access to? If so, what types of foods are these? Why do you want/need more access to these foods?
What types of food related concerns exist in your community?
Food Security in the Household
What types of challenges have you faced in feeding your family?
How have you dealt with these challenges?
What do you think would make it easier for you to obtain and consume the foods you want?
FWAF Gardens, Home Gardens, and Individual Participation
Do you participate in the FWAF gardens? If so, why did you decide to participate in the FWAF gardens? If not, why do you not participate?
Do you home garden? If yes, why did you begin home gardening?
If participant responded yes to the previous questions:
How has participating in the FWAF garden or home gardening influenced you?
Has gardening changed your diet or the diet of your family? If so, how?
What have you found to be the most rewarding part of gardening?
What has been your biggest challenge in gardening?
What types of experiences did you have with growing food previously? How did you learn about gardening?
Is there anything that could make it easier for you to participate in gardening in Fellsmere?

Interviews: Analysis

I transcribed interviews into a Word document and reviewed them for accuracy. Further, I created a codebook through inductive coding of the interview guide and the review of several transcripts for common themes (Bernard 2011). I analyzed the transcribed interviews using Atlast.ti 6.2. Data from all codes were reviewed for thematic analysis. Participants' quotes are

presented in the results chapter with the exception of quotes taken from the interview with the Spanish speaker. In this case, the translation given during the interview by the translator is reported. Several precautions were utilized in order to protect participants' anonymity. All quotes were edited and are presented in the first person to de-identify the data. Further, any information that

could be attributed to only one participant was either changed or deleted.

Food Access and Security Surveys: Data Collection

A survey was used to collect cross-sectional data on food access and food security status (see Appendix B). The survey was adapted from a survey that was used in another farmworker community by the FWAF. Information was collected across four domains: general demographics, food access and availability, food choices and barriers, and household food security. The Six-Item HFSSM was used to assess food security. The surveys were collected through three channels: (1) participants were recruited at the FWAF office during normal office activities; (2) garden members were recruited to participate during garden meetings; and (3) participants were also recruited at the local farmer's market in which the community garden regularly participated as a vendor. The only inclusion criteria to participate was that participants had to be eighteen years or older and residents of Fellsmere. Thus, a broad net was cast so that the sample represents the people who utilize the FWAF resources (which include an in-office food and clothes pantry), participate in the community garden, and attend the farmer's market.

The survey sample is best described as a cross section of residents interested in local food in Fellsmere and residents who utilize the FWAF office as a resource. The survey was available in both Spanish and English. Half of the surveys (n=15) were collected through channels one and two described above. Additionally, the other half (n=15) of surveys was collected at the

farmer's market with the help of a translator. At the farmer's market, potential participants were asked if they lived in Fellsmere. If they responded, "yes" they were then asked if they would like to participate in a voluntary and confidential survey. If a participant needed additional assistance in taking the survey, the questions were privately read aloud to the participant.

Food Access and Security Surveys: Analysis

Survey responses were entered into SPSS version 21.0 database for analysis. Preliminary analysis consisted of running frequencies on all variables and then crosstabs on variables of particular interest. Chi-square tests and Fisher's exacts tests were conducted to examine the specific relationship between group membership and food access, availability, and security status. These analyses focused on farmworker status, gardener status, poverty guideline status, and food security status. Due to the small size of the sample (n=30) specific variables were collapsed in order to increase the counts of responses for analysis. A description of the protocol used to collapse variables is presented below.

- Participants' self reported age was collapsed into age categories based on the criteria used by the U.S. Census (15-24; 25-34; 35-44; 45-54; 55-64; 65+). Eighteen years of age was used as the lowest limit of the age categories.
- Income ranges and the number of household members were used to collapse participants into categories below and above the poverty guideline. The poverty guideline is the criterion used to evaluate whether or not individuals are eligible for food assistance and other types of aid (U.S. Department of Health and Human Services 2013). Participants were asked how many people lived in their household including themselves; response ranges included 1, 2-3, 4-5, 6-7, or 8 or more. Similarly, participants were asked their household income; response options included less than $10,000, $10,000 – $14,999,

$15,000 – $24,999, $25,000 – $34,999, $35,000 – $49,999, $50,000 - $74,999, or $75,000 or more. The fewest number of people in the range reported and the highest amount of income in the range reported were then compared to the poverty guidelines to assess whether or not households were below or above the poverty guideline. Exceptions were made for two cases that reported 4-5 people in their household and $15,000-$24,999 in annual income. The poverty guideline for a household of four is $23,550. These two cases were included in the below-poverty group since the likelihood that the number of people in the house and annual income were actually within the poverty guideline range was very high given the close proximity to the poverty guidelines and the conservative approach taken to classify respondents. Further, both cases fell below the 130-133 percent poverty line that is often used to determine eligibility for formal assistance, including Medicaid and the Supplemental Nutrition Assistance Program ("Eligibility" N.d; "Supplemental Nutrition Assistance Program (SNAP)" 2013).

- Self-reported place of birth was collapsed into USA, Mexico and other. These three categories were used to capture the place of birth of the majority of participants. Most participants were either born in the United States (n=13) or Mexico (n=13). The other category represents participants born in three other countries.
- A dichotomized gardening variable was created to evaluate participants' involvement in any type of gardening, including participation in FWAF and participation in home gardening.

Reponses to the Six-Item HFSSM (see Table 3.3 for the questions) were scored by the guidelines presented in U.S. Household Food Security Survey Module: Six-Item Short Form (Economic Research Service 2012). Each affirmative response is given a point with the

exception of Question 4. All the affirmative responses are then added together for a cumulative score. The scoring schema is as follows:

- 0-1, Food Secure: Households did not experience any problems or anxieties related to accessing food.
- 2-4, Low Food Security: While quantity of food consumed and eating patterns remained the same, households experienced decreases in the quality, variety, and social desirability of foods consumed.
- 5-6, Very Low Food Security: Food intake was decreased and food patterns changed by one or more members of the household because of a lack of money and/or resources.

Table 3.3. Six-Item Household Food Security Survey Module

Food Security Questions
The food that you bought just didn't last, and you didn't have money to get more. Was that often, sometimes, or never true for you or your household in the last 12 months?
You couldn't afford to eat balanced meals. Was that often, sometimes, or never true for you or your household in the last 12 months?
In the last 12 months, since last June/July did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?
IF YES ABOVE, How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?
In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

In order to conduct meaningful analysis, these results were further collapsed into categories of food secure or food insecure. This grouping of the data is based on the recommendations for scoring found in the Six-Item HFSSM directions (Economic Research Service 2012) and divides participants into two groups, those without any issues accessing the foods they want and/or need and those with issues accessing the foods they want and/or need. As a note, this procedure does not allow for any differentiation between the different levels of

food security. A conservative approach was taken towards the scoring of the Six-Item HFSSM. Data from participants who answered fewer than three of the food security questions were not included in the analysis.

Food Store Survey: Data Collection

The USDA Thrifty Food List Store Survey (Cohen 2002) was used to assess the availability of foods in Fellsmere. The list, which was created by the USDA as a guideline for a healthy diet for low-income families is part of the *Community Food Security Toolkit.* The USDA also suggests that the Thrifty Food List is useful as a gauge of food affordability. I chose which food stores to survey based on participant observation and the Supplemental Nutrition Assistance Program (SNAP) retailer database ("SNAP Retailer Locator" 2013). Only food stores that accept SNAP benefits were surveyed. Initially, I used the SNAP retailer list to create an excel database to randomly select which stores to visit. However, this strategy was soon abandoned once I started visiting the stores and asking for permission to survey the store. See Appendix B for the introductory script and survey. Several stores declined participation. Regrettably, the only produce stand that accepts SNAP benefits was not open when I conducted the food-store surveys. I also visited the SNAP Monthly Benefit Issuance Schedule website to determine when to visit stores. SNAP benefits are issued the first through fifteenth of each month in Florida based on individual case numbers ("SNAP Monthly Benefit Issuance Schedule" 2013). In total, six stores were surveyed. All were surveyed between the fifth and thirteenth of the summer and early fall months.

Food Store Survey: Analysis

The food-store data were entered into an excel database for analysis. Once all the data were entered, it was spot checked against the original paper survey for each store. Quantitative

analysis was conducted using Excel and a calculator. The primary goal of the quantitative analysis was to provide a snap shot of the foods that are available to residents of Fellsmere. Affordability was not assessed because of the high number of missing items per store and the lack of standardization in food sizes at food stores in Fellsmere.

Chapter Four: Results

Interviews

All the participants interviewed are connected to the garden in some way, either as volunteers or garden members. The amount of individual participation in the garden varies across participants. While interview participants were not asked directly how often they participate in the garden, based on participant observation, I estimate that community garden participation among the sample ranges from thirty minutes to thirty hours a week. However, variations in the amount of time participants' work in the garden are not explored in the results section below in order to protect anonymity. Several of the participants' also had home gardens, a distinction that is also not examined to maintain confidentiality. Almost all the participants had participated in gardening as children or young adults in Mexico or the United States. Gardening or farming was clearly a memorable part of several of the participants' upbringing and continues to be to this day. These stories are largely left out of the results below because the specifics of location and with whom they learned to garden or farm would be too revealing of their identities. Not all the participants had extensive gardening or farming knowledge prior to the community garden. In addition to various prior gardening experiences, the age range of interviewees is very broad, from young adult to middle aged. Gender is also left out of the narrative in order to preserve confidentiality given the small sample size and community size, however both genders participated in interviews.

Results from the interviews are presented below in three sections: (1) the Fellsmere food environment, (2) household and community nutritional issues, and (3) gardening in Fellsmere.

The first section explores participants' perceptions of the local food environment, both the assets and deficits of the food places in Fellsmere. In this section, participants also discuss their use of gardens as "food places", similar to the ways food stores are conceptualized. Specifically, participants discuss how growing produce in their own gardens reduces the need for them to buy foods at food stores. In the second section, participants identify and discuss the household and community nutrition challenges that exist in Fellsmere. Clearly, there is a great deal of overlap between the first two sections. As will be shown, perceptions of the food environment are directly related to overall perceptions of household and community nutrition. Participants' individual and community-level perceptions of the social realities in their community influence their perceptions of the food environment. This tension between food availability, affordability, and acceptability is evident in the participants' experiences and perceptions of food. The third section examines the impact that the community garden and home gardening has on participants' social, physical, and emotional lives. Similarly, this section touches on the perceived benefits and challenges that are unique to small-scale gardening and agriculture. Given that the community garden is run by and for farmworkers, special attention is also given to how the farmworker experience and knowledge translates to small-scale gardening.

The Fellsmere Food Environment: Quality, Variety, and Locally Grown Solutions

Food store quality and variety. Almost all participants reported shopping at the stores within Fellsmere, even if only necessary to get one or two items. Participants reported mixed responses on their satisfaction with the food choices in Fellsmere, several participants expressed satisfaction with their options in Fellsmere and others noted deficits in the foods that are available. Several participants noted that there are not high quality foods in Fellsmere. Specifically, participants spoke to the lack of variety and the freshness of produce. For example,

one participant explained they had to travel outside of Fellsmere to purchase fruit. When the participant was probed further for what types of things were not available in Fellsmere, the following conversation occurred,

> Interviewer: Are there not a lot of fruits available here?
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> Participant: I don't think there is, a lot of times that I have been to the store [and] there is some, but they are not the best they are kinda like gross.
>
> Interviewer: What do you mean by that?
>
> Participant: I don't know, it does not look as good, does not taste as good as it does from Wal-Mart, it is not as fresh.

Another participant explained why they believe the food available in Fellsmere is of lower quality, "People go where they can spend less money, and it is why the vendors bring vegetables that people can afford because it is the same reason." Ultimately, vendors are bringing lower quality, more affordable foods into the community.

Several participants expressed a desire for more access to specific types of produce that are not available in Fellsmere. Two participants clearly expressed a desire for and noted the lack of fresh greens in the community, as evidenced by the following example:

> Interviewer: So are you satisfied with the places you have to shop at here?
>
> Participant: Yeah, my biggest problem is that, one thing they are missing to me is lettuce, other than you know once in a while you can find a head of iceberg, you know. I love leafy greens lettuces, I love the lettuces, and that is one thing that I have gotten off of the last probably three or four years... But to me, that is one of the main things I am missing.

Participants also related a preference for foods that were produced differently than the conventional foods available at Fellsmere food places. An emphasis was placed on access to organically produced foods. A few participants noted that these foods are not always available in Fellsmere food stores. According to one participant:

> I like to buy local but sometimes you just...it is not the quality that you want …and I really look to try to buy one or two vegetables that are organic. (Interview Participant)

Another participant stated a similar sentiment regarding meat.

> Participant: I love meat. I would like for me to know where my meat comes from. You go into these local stores here, and they have it there, but they don't tell you where it comes from, where they buy it from, I am fortunate enough to now, maybe, to afford it but I want to know.
>
> Interviewer: Where do you want it to come from? When you say you want to know where it comes from?
>
> Participant: You know, just organic—they have their grass-fed beef free range. None of that where they have hundreds of them in kennels, like the way it was supposed to be, I would say, before it was mass produced.

Participants communicated that there is greater variety in foods available at the stores outside Fellsmere such as Publix and Wal-Mart, which are approximately five and half and twelve miles from the center of Fellsmere, respectively. Perceptions on whether food is more expensive at the local stores versus the stores outside Fellsmere was mixed. For example, in the following excerpt of an interview, one participant felt that it is worth it to pay the more expensive prices for food in the stores outside of Fellsmere for the convenience of one-stop shopping,

> Interviewer: Why do you shop at Publix versus the stores that are here?
>
> Participant: It is convenience more of it, it is all in one place. Usually, they have pretty decent quality most of the time. You pay for the convenience, definitely, though. You could buy the same thing here at the store locally for a tad bit cheaper, but it is just about having to run from one place to another that kind of deters me from doing it.

Yet, for another participant the expense of traveling outside of Fellsmere made the trip cost prohibitive, stating that:

> The other is just the lack of money to have enough to make it worth a trip to go

> there. Usually, like I said, I pick something up at Publix if I am going that way for something that I have to do. Uh, the prices are not that different. Other than you have an expanded choices at Wal-Mart, Publix, or Winn Dixie even. The prices to me are not that different; it is not worth the gas and time to go elsewhere than it is to just shop here. That is what I have personally found. (Interview Participant)

A few participants discussed difficulties in being able to buy everything in one place in Fellsmere and the smaller sizes of products sold in the stores. The following interview section illustrates the perception of one participant:

> Interviewer: Are there any foods that you wish there was more of in Fellsmere?
>
> Participant: Like what do you mean?
>
> Interviewer: Is there anything that you wish you had more access to or you would like to see more of this food available in the stores around here?
>
> Participant: No, I think that is enough what they have and what I usually consume. I think that is enough because whatever they have in here…[is] what we really need to buy. Actually, I can tell you that the Mexican store has almost everything. The thing is you can tell there [are] convenience stores. All the community stores sell the stuff by …[the] small portions. Like the towels for the bath, you can buy just one roll, which is more expensive than when you go to Wal-Mart and get the big bunch of stuff, and you are getting [it] for a cheap price that is the thing. Actually, you can find everything in this town. The only thing is that the convenience stores there you can find small, small things and they are more expensive than when you buy big stuff and save a little bit. That is not to say we save or not but when you … have more you spend more.

In general, participant perceptions of the Fellsmere food environment suggest that there is a lack of high quality fruits and vegetables. None of the participants directly stated that food is inaccessible in the community, rather the food options may not be as varied *and* of the quality that participants desire. The data also suggest that food store *type,* such as a one-stop shopping-grocery store, is limited in Fellsmere.

Garden produce. In addition to discussions on local food stores both within and outside of Fellsmere, participants also discussed the use of home and community gardens. When asked

where they acquire food, over half of the participants directly responded that some of their produce and, in some cases, animal products were from the community garden, a home garden, or backyard livestock. Even though participants did not describe their chickens, rabbits, or quail as backyard livestock, the term is used here to denote small-scale livestock production. A few participants clearly linked their ability to produce their own food as a way to supplement their diets when needed, as one participant stated, "Meat has not really been a problem for us because we raise our own... So the meat is not the problem. It is the other things that go with it." Another participant spoke of how the community garden offset food costs, stating: "So, the lettuce…it is so so expensive. But that was in the past; now I don't buy that much because of the garden." Gardens and livestock provide foods that may otherwise be inaccessible because of cost to participants. The associated benefits of gardening are discussed in depth in the next section.

Locally grown solutions. When participants were specifically probed for what they felt could improve their access to the foods they want in Fellsmere, the majority expressed support and/or a desire for strategies that are associated with community food security, such as a farmer's market, a stronger trade network for producers, a healthy take-out alternative in the community, and increased nutritional education on food choices.

Two participants clearly advocated for a farmer's market in the community, "What would be easier and better? To have it available like what we are doing with the farmer's market, I really think that will help us a lot," said one participant. Another participant articulated his/her ideal market stating the following:

> Participant: …I mean I really wish there was something like a full-blown farmer's market, not everyday but at least on the weekends, Friday, Saturday, Sunday.
>
> Interviewer: So when you say a full-blown farmer's market what do you mean?
>
> Participant: Um, have a, let's say, a Publix-size variety of fruits and vegetables. I

> mean you go to any of the local stores here, and you would be lucky to find an apple or a pear. They usually [have] just tomatoes, lemons, onions, and jalapenos—and that is it.

A participant emphasized the need for more local foods grown in Fellsmere, stating that, "in a perfect world, well, the thing is… I like to buy local and to buy here, but some of the products to buy local, it is because you don't have, like I say before, you don't have much to choose [from]." Another participant expressed the need for strengthening the existing small trade networks that exist between gardeners and growers, stating that:

> More of a network [is needed]. There is a network where we can exchange, but in my specific situation, I rent property so it can't be used to plant. I could if I wanted, but my neighbors have dogs and cats that would interfere with the growing process. If there was a better network of exchange, it would be better for me. (Interview Participant)

Further, one participant strongly suggested the need for holistic education in the community on food choices as they relate to organic and quality produce, stating that:

> Yeah, the more you start knowing about choices. Pretty much we have, little by little, they are bringing more…This comes with practice, you know, not chemical free, but you know, I really want more of that, but I don't know if our people are ready to pay for that. There has to be more deep education about choices, or maybe I am not going to buy this but I am going to buy this. It is about education I believe. (Interview Participant)

This same participant later explained that, "it is just waking up those people because I know… they have everything. It is just they want to hide it or they...their blood is theirs. It is just a matter of saying you have the solution in your hands. You just have to want to do it. You want to be healthy and wake up all the knowledge that you have." According to another participant, their desire for education was one of the motivations for them to participate in the garden:

> Aside from that, one of the most important components, the appeal was the education. I was actually able to learn how to plant these seeds and actually know how they grow, and most of all, I liked the idea of knowing my own food on the table. I know where it comes from, how it was grown, and how it was properly raised. (Interview Participant)

Despite the varied responses to changes participants would like to see in the local food environment, clearly they are advocating for more sustainable, healthy food alternatives. Granted this particular sample may be biased towards such strategies because of their involvement in the community garden and home gardening. Many of their suggestions build on already existing relationships and infrastructure. For example, a farmer's market officially began in fall 2013 in the parking lot of city hall. Further, the expansion of informal food networks to include more producers and growers is something that easily could be explored in the community utilizing existing relationships between individuals and organizations.

Household and Community Nutritional Issues

There is a great deal of overlap between the household and community nutritional concerns that participants expressed in the interviews. As such, they are presented here together to avoid overstating the specific concerns voiced by participants. The two most salient food-related issues expressed by participants include the barriers of food costs and time. Other issues and factors relevant to household and community nutrition are also explored, such as nutritional habits and obesity, transportation, and generational differences in food preferences.

Affordability and time. The majority of participants listed the cost of food or having a low income as an important consideration and/or primary concern for either themselves or others in the community. According to one participant:

> You know, I do know some people in this community that barely have money, and they do get things that are cheaper that are [not] necessarily what is best for them, you know. I know people who would like to have options. Myself, I am ok, but there are people that I know that have very low incomes that are older and not able to garden. (Interview Participant)

Almost all participants—in differing degrees—mentioned the price of food and a few spoke of having to sometimes trade quality for cost. The following participant explained his/her situation:

> Participant: It gets to be a little more expensive and that is the only downside, I would say. When you compare the prices to eating at take out, you can …buy a whole pizza for five bucks but you can only buy, say, five peaches for five dollars, and that makes you think about it. But I guess for the people that think about their health or try to change their eating habits, it is worth it, but it is expensive, ridiculously expensive, I think.
>
> Interviewer: You think that is one of the barriers to changing? That is what it sounds like is that it's one of the harder parts of it.
>
> Participant: Well, it is [the] financial aspect. For the moment in my life…I got stuck working minimum wage and it is damn near impossible to afford fruits and vegetables on that kind of a budget.

The challenges of time—juggling multiple responsibilities such as work and family and preparing healthy foods was also something that was discussed by a few participants. As one participant explained, "… [my parents] would stock the pantry up full with Ramon noodles and cookies and stuff that we could make on the fly because they were working all day…" Another participant voiced similar sentiments of other community members stating that, "…most of the farmworkers struggle a lot, going to work in the morning and coming home late in the afternoon." The negative consequences of a lack of time and money are further explored in the next theme.

Nutritional habits and obesity. A few participants spoke frankly about weight and obesity issues for either themselves or those in their community. In some cases, weight issues were connected to not having enough time and money to eat well. As one participant explained:

> Mmm. I know one of the biggest things that XXX and I have gotten away from the last few years, mostly because of money. I can go buy a $3.50 thing of sausage. A thing of either spaghetti or angel hair pasta or whatever for a $1.00. So, for $4.50 we have got a thing of basically four meals, and it has just been a money thing. I take a little onion, and so, for less than $5.00 dollars we can both eat twice. And that is one thing that has not been good for either one of us, for the weight thing…you know, the calories and all. But is it easy, fast and cheap. You can't even eat at McDonalds on the dollar menu for that. [Laughter] I think the biggest problem is just the fastness, and taking the time to cook it, and having it available at a reasonable price. (Interview Participant)

Further, for the few participants who did discuss obesity and weight issues, these discussions were often couched in nutritional habits that could cause weight gain. According to one participant:

> Because me, I used to buy a lot of bread, a lot of cookies, a lot of potato chips, but when I...you know, it is the way that I raise my kids with…I think...I was working all the time …I was doing my part, and what I had was a lot of potato chips, a lot of candy, and now I feel so guilty. My XXX is overweight, my XXX is overweight, and they suffer for that. They suffer for being overweight since they were little. (Interview Participant)

One participant clearly advocated for nutritional education in the community stating that "it has to be deeper education, you know, [people] don't even know what organic is, [but] you see the change since we start to talk about products without chemicals. People start asking the questions, but I think, not knowing that there is another option [causes] some of the problems that we see." The relationships between money, time, health, and knowledge are clear throughout these results.

Transportation. While only one participant stated that he/she did not buy food outside of Fellsmere because of transportation issues, three other participants included having transportation as a reason why they perceived their access as satisfactory. For example, one participant responded, "everything is fine—we have got transportation. Even if it is all the way to Wal-Mart, we can get there...it is just that we don't like going that far."

Generational differences. Two participants discussed generational differences between what adults and children eat. For example, the following participant explained that his/her child prefers the types of foods received at school to the fresher foods prepared at home: "…in terms of the organics [the kids] like those the least. They are eating what they know, and what they know is the food that is at the school, the school food." Another participant stated that

sometimes adults may prefer Mexican foods and children prefer American foods, but this preference varies across households and often is influenced by whether or not the adults were born in the United States or Latin America. However, when another participant was asked directly about differences between adult and child food preferences, he/she responded, "Well, actually we don't have any problem with that. No." The different food preferences between children and adults illustrate the power of culture in influencing food choice, both in the school culture children inhabit in the United States and the cultural changes that occur as part of dietary shifts.

Fellsmere Gardens

A portion of the interview guide was dedicated to questions specifically addressing gardening—including both home gardening and community gardening. The following sections present participants' responses to these questions as they relate to emergent domains, such as perceived benefits, if and how gardening affects diet, the importance of sharing knowledge, garden practices, perceived challenges, and farmworker experiences in agriculture. While there is overlap between perceived benefits of gardening and gardening effects on diet, they are separated as two distinct domains below since they were separately probed for in the interviews.

Perceived benefits of gardening. Participants spoke of many perceived benefits related to gardening in general and community gardening. These benefits include—but are not limited to—cost savings, a sense of control over food production, and emotional rewards, as well as specific benefits of participating in a community garden rather than home gardening.

The two most salient benefits of gardening reported by participants were economic incentives (saving money) and this idea of "knowing where my food comes from." Several participants commented on their food cost savings since engaging in home gardening or being

involved in the community garden. According to one participant:

> Yes. Definitely, when you start doing it, economically, it is amazing. I used to spend a lot of money on vegetables, and now, if I have a lot of whatever, you know, I find a way to cook it and eat it… eggplants, okra, whatever we have and we choose. When we put the seeds in the ground, you know we are choosing that product. (Interview Participant)

Another participant stated:

> One of the things that was also very appealing was that it affects monetary exchange. I don't have to waste money. Every time I get home and I can grow my food and save some, something. (Interview Participant)

Other participants expressed wanting to know where their food comes from, as one participant stated: "…there is also a change in my satisfaction in knowing where it is coming from and knowing that I have an option to grow my own food and use that food rather than going to Wal-Mart and hoping for the best." Several participants spoke of the power they feel from having control and independence over the ability to produce their own food. One participant stated:

> Um, well it has made us—me and my XXX, both—made us want to do more growing our own, growing our own things. You know talking with XXX, then looking up things, and all, made us realize, made me realize, that I am more, I have more of a conviction that…we need to be able to raise and take care of ourselves. (Interview Participant)

According to another participant:

> I feel very proud, I see how these little seeds can, with a little bit of water and care, you can have a very good salad without going to the store…(Interview Participant)

Participants also expressed other feelings of pride and reward as a result of their participating in the garden and being able to share their food and knowledge with the community. The following participant explained what he/she found to be the most rewarding part of gardening, stating that:

> To me what is gratifying is knowing that within this small group, we know where this food comes from, and so we…I find it gratifying to share the knowledge with the community. And when it comes to the farmer's market, they have the assurance that it is securely grown food without the chemicals or any kinds of harmful chemicals. (Interview Participant)

According to another participant:

> When I go and work on the garden, [I] come back with this big basket of fresh vegetables or sharing the vegetables with people. I really want the people that help us in very different ways, like helping the community to express my gratitude with a basket of vegetables; I think that is one of the best feelings. (Interview Participant)

For another participant, gardening provided a sense of purpose, stating that:

> I like to do stuff, and, you know, one of the [reasons] I enjoy [gardening] is because you don't waste your time. You have free time; you don't have to be just hanging around doing nothing, you can…clean your garden, fertilize them, invest the time instead of just hanging around [you can] do something for you and your family. (Interview Participant)

In addition, a few participants spoke of benefits that were directly related to how the community garden was structured. One participant noted that the communal nature of the garden meant that responsibility and work was shared. The community garden is, "a good way of having people together. If you can't go today, [someone else] can water your cucumbers, or if you can't go, I can water your radishes." (Interview Participant)

Another participant spoke of how the communal garden alleviated the cost of watering a home garden in the following interview excerpt :

> Interviewer: So when you said why tear up your yard, do you see that as one of the benefits of the community garden as a place…
>
> Participant: Definitely, because you can't have the best of both worlds. You know if you have your own garden at home, one thing personally that I noticed, your water bill just skyrockets. I remember when we did it, our utility bill is usually around 35.00 dollars, but when we did it, it came in around 120.00 dollars in just a month.

Gardening and diet. The majority of participants indicated that the community garden and home gardening increased the variety and selection of produce available to them. "Definitely, we eat vegetables much more now than before. [They are] available right around the corner and not as expensive. You can go pick it, not spend $10.00 on that," stated one participant. Only one participant reported that his/her diet had actually gotten worse since the beginning of the community garden. However, when probed further it became clear that this was for reasons unrelated to the garden. Further, two other participants did not think that the quantity of vegetable consumption had increased for their families because of lifelong food preferences. According to one participant:

> I have always been a vegetable lover and always eaten vegetables. But no, they still won't eat them. I mean there are some things. My XXX won't eat cooked cabbage, but he will eat coleslaw. He will eat green beans, and he likes tomatoes. However, he doesn't like cucumbers or squash or all those things. (Interview Participant)

We are all in this together: Sharing knowledge. The importance of learning from others and sharing knowledge emerged as an important theme from the participants, one participant stated:

> I always try to grow things at home but never with a good experience…until we started sharing knowledge, you know. I learn so much from XX, and I learned so much from XX. I learned from the ones that really… I don't have experience like others from rural communities that have a [lot] of experience in farming. And we are learning from them. (Interview Participant)

Many participants spoke of how they had learned from others within and outside of the gardening group. One participant clearly saw the process as vital to the community garden by stating the following: "The more people that get involved, the more knowledge that will benefit me and for them too. They don't know what I will do." The same participant also suggested that getting more people involved was important because, as he/she explained, "even if they don't

stay, they can leave and grow for themselves at home."

The following data on specific gardening practices demonstrates the sharing of knowledge that occurs among members of the Fellsmere gardening community.

Gardening: Cultural practices. While participants discussed numerous activities related to gardening, three gardening practices were specifically probed for and discussed most often during the interviews. These include planting by the moon, seed saving, and the garden decision-making process. All three of these practices represent environmental knowledge specifically used by and transmitted through community members in Fellsmere. Further, these three practices repeatedly emerged during participant observation with community garden members.

Four participants had direct knowledge of planting by the moon, a folk gardening method that they learned from family members, other garden members, or garden workshops. The network through which people learned of this technique is not completely clear as participants reported learning it through different channels. Several participants—in varying degrees—spoke about trying to follow the planting guidelines associated with the method. The following are explanations of planting by the moon from two different participants. According to one participant:

> I have tested it just these three years, planting onions when it was the dark of the moon for underground things, and I have planted some aboveground, and sure enough, the underground ones got big, and the ones I planted in the light of the moon, I had big beautiful green onions, but I never grew onions big onions. So, I tested that, and I know that much works. (Interview Participant)

Another participant gave a similar description,

> Interviewer: And I have another, have you ever heard, and I am just asking because I heard other people talking about it, have you ever heard of planting by the moon?

Participant: Yeah.

Interviewer: Can you talk about that?

Participant: Not always, but, well sometimes. Usually the plants…the ones you want to produce on top of the ground like tomatillo, tomatoes, corn, any kinds of trees, I usually plant when the moon is a little moon. The plants that grow underground, like peanuts, radish, carrots, stuff that grows under the ground, I usually plant them a little bit over the full moon.

Several participants also spoke of their experiences and the experience of others in the community with seed saving. The frequency that participants reported intentionally saving seeds varies. The following section of an interview demonstrates the sense of cultural identity infused in the act of saving seeds:

Interviewer: I have a couple more questions. I know that some people bring seeds from Mexico and that you guys are also doing seed saving, okra. So is that something in general that you are trying to do in the garden, that is, incorporate some of those things…

Participant: Well yeah, the reason that we have seeds from Mexico is because… I think my first experience in the garden, my first year, was to be able to grow purple corn. It is the only corn that you can eat in Michoacán in Mexico. XXX got some corn that he was saving from their own country, put it on the, the first year, he put in on the garden [and] the corn that year was a wonderful experience for the first year. And since then we have tried to try bringing seeds and, not only bringing seeds, but there are already people here, almost everybody has something growing in their homes…When they find out that we are trying to do, one person that, he lives about two blocks from here, stopped by the office one day. He brought this big zucchini, and he says: I want you to have this and save the seeds because they come from—you know, people here from Fellsmere, they are from Michoacán, Oaxaca, Puebla, all these different rural communities, and when they go back, they hide something to bring something. And this is a very good thing for the garden because now they [are] sharing what they bring from their own country, like the jicama. I didn't know that some people before the garden grew jicama alone…and then we started searching for jicama seeds and [we find] seeds that come from our country, that come from their own families [with a] long story about it. But then we start saving seeds, because, you know, when you let the vegetable [go] and you see the seeds there, and you say, well, save the seeds and you know it is [for] the next year, and it is working. So now we are in the process of learning the best way of saving seeds. Since the first year, I remember we were saving cilantro because we let the cilantro grow and we have all these seeds, and I think XX and XX had some knowledge of that because they

> are always telling them, "save these seeds." So yeah, okra, cilantro, what else did we save? Tomatoes, sometimes even the tomatoes that grow in the same place you planted, and when it is time, they come back, and they give you tomatoes. The volunteer plants come by themselves, so we let the plants stay, and we get more tomatoes next year.

Conversely, another participant reported, "Sometimes I save some, and sometimes I don't because some of them, you can reuse them, and some of them, sometimes, it is not very, very good. But some of them I save from what I produce, I save the corn, …different kinds but not all the times, but sometimes."

Participants also spoke about their processes in choosing what to plant and adapting new growing techniques. A few participants indicated that they like to plant what they like to eat. One participant stated that:

> Tomatoes are a staple; you know tomatoes don't always do that good here, but everybody eats tomatoes pretty much. Um, I love beans; beans are my thing too. Pretty [much] we just, it is whatever, you see it is green bean, tomatoes... and I like carrots. I have never had good success [with] carrots. Now XXX and them did real good with them last season, and they were good. So I might like to try some of them again. (Interview Participant)

Participants also spoke to how this process was refined through trial and error by learning about the best growing conditions for specific crops and, in one participant's case, adapting between different climates. According to one participant:

> Participant: Yeah, the soil in Mexico, in exactly the place that I am coming from,…when you use the water to irrigate, there is a lot of mud. It is very muddy in there so you don't have to irrigating as much as here because when you irrigate over there the soil holds the humidity for longer than here. Here if you irrigate today, some of the plants you can irrigate again tomorrow or every other day because the water goes down fast.
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> Interviewer: So, how did you learn about the differences?
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> Participant: Well, like you say, the ground is very sandy and you just put the water and you don't see where the water is going so that is easy to learn that. You can irrigate you know like every day some of the plants or like every other day, and you don't have any problem because it is very sandy.

> Interviewer: So it is sort of trial and error maybe. Like you try it, and if it works, good then.
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> Participant: Exactly. Yeah, then I try it again.

The gardening practices described in this section demonstrate strong ties that bind people to place, rich in social and environmental meaning.

Gardening challenges: The human and the pests. Participants spoke of many challenges associated with gardening and the community garden. These challenges are presented as social and physical challenges. Social challenges focus on cultural barriers to participation. Physical challenges include a lack of time, organic pest control, physical limitations, and home ownership. Despite these distinctions into social and physical challenges, I fully recognize and appreciate that the cause for several of the physical challenges, such as time and home ownership, are rooted in social realities. Still, for the purposes of identifying tangible barriers, they are identified here as physical challenges.

A few participants felt that getting others involved in the garden was the biggest challenge. While no one had definitive answers on why this was a challenge, several participants spoke of broad cultural barriers that they felt might deter others from participating. A few participants felt that the younger generation may not want to participate because of a culture of instant gratification—everyone wants everything immediately, a sentiment that is the antithesis of slow-growing vegetables that need, as one participant stated: "A major requirement is consistency. With consistency it is not easy to just… there are going to be times that you want to call off a day, or I am too tired to take care of this garden, take care of that or to weed out this or weed out that. So because of this, it is not a very attractive or appealing option [for some]." Other participants also acknowledged that some people might not want to participate because as

one participant explained, “they don’t want to get their hands dirty and make their own food.” Another participant also voiced concerns that Mexican immigrants may not want to be associated with agricultural work because of discrimination and prejudice and trying to acculturate to American norms, stating that:

> I have been talking a lot with people, and one thing is and I don’t know if this is going to sound mean, but this is the way that I see it. Because just the way that we look, we have to struggle twice as much about everything. So, a lot of people when they get here, they try to pretend [to be] American. They try to, they cover themselves. They feel ashamed of who they are. They start to.. ok if this is the way or my ticket to doing well, then. I have to act like an American. They feel ashamed of who they are. That transformation happened to me. When you feel, when you are pretending to be somebody that you are not, then you become, you have to do what you see the other people do to be accepted. But that is the wrong path, and I understand that …I have to feel proud of who I am. I understand that maybe eight years ago nine years ago. I have to be proud of who I am to be able to walk forward and not feel ashamed of who I am and who I was. I think that is one of the things that stop a lot of people from participating because they don’t want to go back from where they come from… (Interview Participant)

This same participant goes on to explain why he/she thinks the lack of participating has roots in issues of cultural identity and class oppression, stating that:

> and every single woman that you talk to… they used to help their parents in Mexico put seeds on the ground, and they even tell you how they do it with the seeds and I never do it in my… Even though we come from the city, there is places where you can grow your vegetables, but a lot of the people here is from different rural, rural, rural communities in Mexico, and they have the knowledge. But I think maybe there is something that oppressed them because they don’t want to go back and do it because they don’t see the value...It has to be something with culture, is the way I see it. There is something they don’t want to go back in their minds. There is a lot of work to be done. (Interview Participant)

Many participants spoke about how others may not have the time to participate after a long workday or their own time constraints that hinder them from participating in the community garden. As one participant explained, “a lot of people probably want to do it but don’t have the time.” This echoed the sentiments of another participant, who explained:

> Their work requires a lot of hours from them. It is…very common for them to

> leave at seven in the morning and then come back at 7:00 pm. By then, it is night; they can't see and they are tired. Next to being tired, the weekends are their only time off, so they use that time to relax and spend time with their children. (Interview Participant)

Many participants also spoke of the difficulties in combatting pests using organic methods. Combatting the pests without using harsh chemicals requires persistence according to another participant:

> Of course, the bugs. Sometimes when you are gardening organic, the bugs are a challenge—like the other day when I was up at my plot, and I was tying up some tomatoes, and some little tiny white flies start flying. So, there is sprays you can do, but you can't if you are doing it organically, so I sprayed with a soap and oil mixture and then, when I went up today I sprayed again, and then, there was.. when I was up there, it has been a couple of days. I try to go like every other day, like every third day… some of my cabbage, cauliflower and broccoli had mites in it. So, I looked, and there were no worms. Something was eating it, and I could tell. But today when I went up there, just one of them had little worms, so I squash it down, and then I spray the whole thing with BT, but one of them, I think a rabbit, has been eating it because you know broccoli grows up, and it just bit off it…wasn't a bug, it was a rabbit. So trying to keep the pest down organically is a challenge. (Interview Participant)

Several participants also discussed physical limitations that may hinder someone from participating, such as physical disabilities and/or old age. Lack of home ownership was another barrier to gardening that was mentioned by one participant: "So, in terms of the food, there is just a lot of barriers here. One of them is renting property it is not their own property…"

Participants were probed about what they thought would make gardening easier in Fellsmere. All of the responses pertained specifically to things that would make working in the community garden easier or more successful. The majority of responses focused on the need for more human and physical resources (tools and implements). Several participants felt that more volunteers, and in the case of one participant, more youth involvement in the garden would help out parents and the community. Another participant supported this idea by explaining that working with youth in the garden was one of his/her favorite activities. Tangentially related,

several participants spoke throughout the interviews of the importance of children learning how to and being involved in the gardening process. Further, one participant spoke to their preference for working in the garden with friends and family, stating that: "I feel like if you did it with someone that you enjoy having a good time with, …it could be more fun." A few participants also felt that they did not need anything to make gardening easier; they have everything they need.

Farmworker knowledge. Several participants recounted experiences of involvement in industrial agriculture as a farmworker. The experiences relayed by two participants suggest that involvement in industrial agriculture may make farmworkers perceptive of the risks involved in working near pesticides. The following is an excerpt of an interview with one participant:

> Participant: It really isn't fair. You can see people climbing into trees full of copper, and you can see them climbing down with their eyelids shut because it cakes up on your eyes.
>
> Interviewer: The copper is a spray?
>
> Participant: It is a spray that I guess prevents the spread of canker. And they can't even open their eyes, and when they do, they have to wash them out, and still it burns.

According to another participant:

> I knew that foods produced in other areas contained chemicals and how the pesticides process went about, so because of that, I know what these foods contain, and that they are not meant for the food but for the bugs that feed off of the produce. So, because of that, I know that it is not exactly the most sanitary thing and that it is harmful. But I was educated on the process of it…I worked in a couple of places all relating to horticulture….I had an instance where I had an allergic reaction to the pesticides. After that, I started working in citrus groves and citrus planting, and with them, they had to use large amounts of chemicals that I was used to, and I had no option but to be used around with as they sprayed citrus. Afterwards, I worked in a XXX factory…but I worked in multiple areas in dealing with that type of stuff. (Interview Participant)

One participant highlighted another part of the farmworker experience that was touched on in an

earlier theme: acculturation. When immigrants cross the border, "they forget…" because of a desire to acculturate and a sense of shame for their *otherness* and work as a farmworker, according to the same participant:

> The other thing is to be honest, and this is why I am telling you what I was telling you before… I was very ashamed, to be very honest. I was very ashamed of what I was doing, to be a picker...because there really is a like a…they make you feel like that is the worst of the worst, but you just have to do it. (Interview Participant)

Participants' perceptions of whether or not they gained knowledge working as a farmworker that could be applied to small-scale gardening or the community garden was mixed. One participant clearly felt that he/she learned about agriculture as part of his/her employment, stating that:

> Of course, of course, if you pay attention anywhere that you work anywhere no matter if it is just agriculture or to just raise animals, if you really pay attention how to treat the plants, how to grow them or raise any kind of animal, wherever you work, anywhere your going, if you pay attention of how to do the jobs or how to treat the animals or plants, so whatever you learn, then, believe me they are going to help you in your life. (Interview Participant)

Yet, another participant clearly articulated that as a farmworker he/she was only involved in one step of the process and, as such, did not really gain any knowledge, stating that:

> I was always harvesting. I never do much of the planting or taking care. I just go and harvest. When the crops are ready to pick, I was there, if it was oranges, apples, cherries or whatever. I remember I was only harvesting. (Interview Participant)

Food Access and Security Survey

The following section presents descriptive statistics for the entire survey population as well as statistical analysis for four specific groups, including differences between gardeners (n=16) and non-gardeners (n=11), farmworkers (n=15) and non farmworkers (n=15), above (n=15) and below (n=13) the poverty guideline participants, and food secure (n=15) and food insecure (n=14) participants.

Participant Demographics

The majority of respondents are female (75.9 percent), married (76.7 percent), and live in households with children (63 percent). Over half (58.6 percent) of participants self-identified as Mexican, Mexican-American, Chicano or Other Hispanic or Latino. Exactly half (50 percent) of the participants indicated that a farmworker lives in their household. More than a quarter (28.6 percent) of the sample posses some schooling, but no high school degree. Twenty-five percent are high school graduates, and 28.6 percent have some college but no degree. Over half (67.9 percent) of participants report income less than $35,000 annually. Under half of the respondents (40 percent) report vegetable gardening at home, and approximately a third of respondents (33.3 percent) report participating in the FWAF gardening activities. Almost all (98 percent) of participants are responsible for purchasing/acquiring, and preparing food in their households (see Table 4.1).

Food Access and Availability

The top three food places respondents use to typically acquire produce are the supermarket/grocery store (81.5 percent), ethnic market/ethnic food store (25.9 percent), and a produce stand/roadside market (22.2 percent). Many participants chose more than one food source as their primary acquisition method. Interestingly, even though 59.3 percent of respondents participate in some type of vegetable gardening only 11.1 percent reported that they purchase/acquire their produce from a garden. Half of the participants live less than three miles from where they food shop, 10.7 percent live three to five miles away, 21.4 percent live five to ten miles away, and 17.9 percent live more than ten miles away.

Participants were asked, “What would make it easier for you to consume more fruits and vegetables?” the top five responses—in order of prevalence are as follows. (see Table 4.2 also)

Table 4.1. Food Access and Security Survey Participant Demographics	Raw #	%
What is your gender?		
Male	7	24.1
Female	29	75.9
Including yourself, how many people currently live in your household?		
1	0	0
2-3	12	41.4
4-5	11	37.9
6-7	5	17.2
8 or more	1	3.4
How many members of your household are under the age of 18?		
0	11	36.7
1	6	20.0
2	5	16.7
3	5	16.7
4 or more	3	10.0
What is your race/ethnicity?		
White	8	27.6
Black/African-American	1	3.4
Mexican, Mexican-American, or Chicano	14	48.3
Other Hispanic or Latino	3	10.3
Haitian	2	6.9
Other: Please Specify	1	3.4
What is your highest level of education?		
No formal schooling	0	0.0
Some schooling, no high school degree	8	28.6
High school graduate/GED	7	25.0
Trade school	2	7.1
Some college, no degree	8	28.6
Associate's or bachelor's degree	1	3.6
Graduate or professional degree	2	7.1
What is your marital status?		
Single	7	23.3
Married	23	76.7
Single living with partner	0	0
What is your annual household income?		
Less than $10,000	5	17.9
$10,000 - $14,999	3	10.7
$15,000 - $24,999	6	21.4
$25,000 - $34,999	5	17.9
$35,000 - $49,999	6	21.4
$50,000 - $74,999	1	3.6
$75,000 or more	2	7.1

Table 4.2. Factors to Make it Easier to Consume Fruits and Vegetables

What would make it easier for you to consume more fruits and vegetables? (Check all that apply)	N	%
More affordable prices	17	60.7
More street vendors/mobile vendors/produce stands/farmer's market in my area	13	46.4
More or better selection at supermarket/grocery store (for example: more ethnic variety)	10	35.7
Knowing how to prepare foods and more knowledge about nutrition and health benefits	9	32.1
More time available to cook and prepare produce	8	28.6
Closer access to supermarket/grocery store	7	25.0
Access to a community garden or personal garden in my neighborhood	4	14.3
Having someone to cook for/eat with	1	3.6
More bus stops near places that sell produce	1	3.6
More food assistance available programs (food bank, pantry, or other donations)	0	0.0

(1) Price (60.7%),
(2) More street vendors (46.4%),
(3) More or better selection at food stores (35.7%),
(4) Knowing how to prepare foods and more knowledge about nutrition and health benefits (32.1%), and
(5) More time available to cook and prepare produce (28.6%).

Interestingly, none of the participants replied that more food assistance programs would make it easier for them to consume fruits and vegetables. There may be two reasons for this: first, often food assistance programs, such as food banks and pantries, do not offer fresh produce, and secondly, respondents prefer to obtain produce through other avenues. Further, few participants (N=4) reported that access to a garden would make it easier for them to consume fruits and vegetables. However, it is likely that this low response is because many participants already had access to a garden. Additionally, even though almost 40 percent of participants live more than five miles from where they food shop, only 25 percent of participants felt that closer access to a supermarket/grocery store would make it easier for them to eat fresh fruits and vegetables.

Food Choices and Barriers

A majority (N= 18, 62.1 percent) of respondents eat one to two servings of vegetables a day, only one participant reported that he/she eat none, 27.6 percent (N=8) eat three to four a

day, and 6.9 percent (N=2) eat five or more. Similarly, the majority (N= 23, 79.3 percent) of participants report that they and/or their family members eat fast food or take-out meals one to two times a week. The remaining 20.7 percent (N=6) eat no fast food or take-out meals each week. Respondents report (see Table 4.3 also) that the following three factors are most important to them in deciding what foods to purchase:

(1) Freshness and quality (72.4%),
(2) Prices (62.1%), and
(3) Health and nutrition (51.7%).

Table 4.3. Important Food Choice Factors

In deciding which foods to purchase, which three factors are the most important to you?	N	%
Freshness/quality	21	72.4
Prices	18	62.1
Health/nutrition	15	51.7
Taste/familiarity	7	24.1
Convenience/ease of preparation	6	20.7

In addition, respondents chose the following factors as the most salient barriers to purchasing/obtaining fresh produce (see Table 4.4 also).

(1) Affordability and cost (53.6%),
(2) Time (32.1%), and
(3) Distance (17.9%).

Table 4.4. Fresh Produce Barriers

Which of the following, if any, make it difficult for you to purchase/obtain fresh produce?	N	%
Affordability/cost	15	53.6
No time available	9	32.1
Distance to store	5	17.9
Lack of transportation available	2	7.1
Physical disabilities	1	3.6

Over half of respondents (N=16, 59.3 percent) replied that sometimes, but not always, the culturally appropriate foods their family desired are available in Fellsmere. In addition, the majority of respondents (N=22, 73.3 percent) do not participate in any food assistance programs.

However, the remaining (N=8, 26.7 percent) respondents do receive some form of assistance, such as SNAP or WIC. According to the criteria for the poverty guidelines of U.S. Department of Health and Human Services (2013), less than half (N=13, 46.4 percent) of participants were categorized as below poverty, and 53.6 percent (N=15) were categorized as above poverty.

Household Food Security

Food security was measured using general food security questions and more formally with the Six-Item HFSSM. The following are some of the general questions:

- Which best describes the food eaten in your household in the last 12 months?
- Do you have to compromise on purchasing fresh fruits and vegetables because of cost?

The majority of participants (64.3 percent) responded that they always have enough to eat, 28.6 percent responded that they sometimes, but not always, have enough to eat, and 7.1 percent responded that often they do not have enough to eat. Further, of those surveyed, 14.3 percent responded that they always have to compromise on purchasing fresh fruits and vegetables because of cost, 71.4 percent sometimes have to comprise, and 14.3 percent never have to compromise (see Table 4.5).

Table 4.5. General Food Security

Which best described the food eaten in your household in the last 12 months?	N	%
Always enough to eat	18	64.3
Sometimes not enough to eat	8	28.6
Often not enough to eat	2	7.1
Do you have to compromise on purchasing fresh fruits and vegetables because of cost?		
Always	4	14.3
Sometimes	20	71.4
Never	4	14.3

The results from the Six-Item HFSSM indicate that over half (51.7 percent) of respondents experience high or marginal food security, 41.4 percent of respondents experience low food security, and 6.9 percent experience very low food security (see Table 4.6).

Table 4.6. Six-Item Household Food Security Survey Module Raw Score

Food Security Category	N	%
High or Marginal Food Security	15	51.7
Low Food Security	12	41.4
Very Low Food Security	2	6.9

Results from the individual Six-Item HFSSM questions indicate that half (50 percent) of the sample affirmed that in the last twelve months, the food they bought just didn't last and that they did not have money to get more. This is noticeably higher than the 35.7 percent of respondents who reported in one of the general food security questions that there is often (7.1 percent), or sometimes (28.6 percent), not enough to eat. Further, half (50 percent) of the sample also affirmed that in the last twelve months they could not afford to eat balanced meals. However, while the questions were worded differently, this is notably lower than the 85.7 percent of respondents who reported for one of the general food security questions described above (see Table 4.5) that they did have to compromise always (14.3 percent) or sometimes (71.4 percent) on the fresh fruits and vegetables they purchased because of cost. Participants interpreted not eating balanced meals because of affordability differently than compromising on buying fruits and vegetable because of cost. Almost a third of the sample (30 percent) affirmed that in the last twelve months, they or other adults in their household had to cut the size of their meals or skip meals because there wasn't enough money for food. Of these respondents, 22.2 percent reported that this situation occurred almost every month, 55.6 percent reported this situation occurred some months, but not every month, 11.1 percent reported this situation

occurred only one or two months, and 11.1 percent reported that they did not know how often this occurred. Almost a quarter (22.2 percent) of all participants affirmed that in the last twelve months they ate less than they felt they should because there wasn't enough money for food. Almost 15 percent of participants reported that in the last twelve months they were hungry but did not eat because there was not enough money for food. See Table 4.7 below.

Table 4.7. Six-Item Household Food Security Survey Module Responses

The food that you bought just didn't last, and you didn't have money to get more. Was that often, sometimes, or never true for you or your household in the last 12 months?	N	%
Often true	1	3.3
Sometimes true	14	46.7
Never true	14	46.7
Do not know	1	3.3
You couldn't afford to eat balanced meals. Was that often, sometimes, or never true for you or your household in the last 12 months?		
Often true	0	0.0
Sometimes true	15	50.0
Never true	14	46.7
Do not know	1	3.3
In the last twelve months, do you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?		
Yes	8	29.6
No	19	70.4
IF YES ABOVE, how often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?		
Almost every month	2	22.2
Some months but not every month	5	55.6
Only 1 or 2 months	1	11.1
Do not know	1	11.1
In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?		
Yes	6	22.2
No	20	74.1
Do not know	1	3.7
In the last twelve months, were you ever hungry but didn't eat because there wasn't enough money for food?		
Yes	4	14.8
No	23	85.2
Do not know	0	0.0

The results were also collapsed into food secure and food insecure categories that followed the suggested guidelines of the Economic Research Service, USDA (2012) U.S. Household Food Security Survey Module: Six-Item Short Form. The collapsed scores indicate that 51.7 percent of respondents are food secure and 48.3 percent of respondents are food insecure. Results of the Six-Item HFSSM collapsed scores can be found in the Table 4.8 below.

Table 4.8. Six-Item Household Food Security Survey Module Collapsed Score

Collapsed Food Security Category	N	%
Food Secure	15	51.7
Food Insecure	14	48.3

Chi-Square and Fisher's Exact Tests

Chi-square tests were conducted on four independent variables chosen on the basis of their relevance to the research questions and objectives. The independent variables include farmworker status, gardener status, poverty guideline status, and food security status. All four variables were then cross-tabulated with dependent variables pertinent to the research questions. Given the small sample size of the survey respondents, the majority of these relationships were not significant. However, as reported below, several of these tests did yield significant results. To represent the data as robustly as possible, variables were collapsed where appropriate. Three of the four independent variables were collapsed from other survey questions. As reported in chapter 3, gardener status was derived from positive or negative responses to two gardening questions; poverty guidelines status was calculated using reported household size and income; and food security status was calculated by collapsing the high and marginal food secure into a single food secure category and collapsing the low and very low food secure into a single food insecure category. Fisher's exact test is reported in lieu of a Chi-square test in instances where the data violated the Chi-square assumptions with low counts in the contingency table cells

(Michael N.d.). The following are the results for each independent variable. See Appendix C for SPSS outputs for each test.

Farmworkers and non-farmworkers. Analysis revealed a significant relationship between farmworker status and the purchase of foods at ethnic markets and ethnic food stores in Fellsmere (p= .033, Fisher's exact test). Approximately 46.2 percent of farmworkers reported that they shop at the local ethnic foods stores compared to 7 percent of non-farmworkers. Intuitively, this finding makes sense. The majority of farmworkers self-identify as Mexican, Mexican American, Chicano (42.9 percent) and Other Hispanic or Latino (21.4 percent), and all ethnic food stores in Fellsmere are Latino.

Above and below the poverty guidelines. The above and below-poverty variable yielded the most statistically significant relationships. According to the Chi-square test results, a highly significant relationship exists between poverty status and food security status (x^2=6.238, p= .013, Phi=-.481). Approximately 75 percent of those living below poverty reported that they are food insecure compared to almost 27 percent of those living above poverty. Similarly, a significant relationship exists between poverty status and experiencing hunger in the last six months (p= .026, Fisher's exact test). Only the below-poverty participants responses affirmed that they were hungry in the last six months but did not eat because there was not enough money for food. Approximately 36 percent of the below poverty participants experienced hunger compared to 0 percent of the above poverty participants.

Analysis revealed several key findings related to the food environment. A significant relationship exists between poverty status and purchasing produce at produce stands and/or roadside markets in the community (p= .017, Fisher's exact test). Approximately 42.9 percent of those living above poverty reported that they buy produce at roadside stands and markets

compared to 0 percent of those living below poverty. Additionally, analysis revealed a highly significant relationship between poverty status and the desire for closer access to a supermarket or grocery store (p= .004, Fisher's exact test). Approximately 50 percent of those living below poverty reported that closer access to a supermarket or grocery store would make it easier for them to consume fresh fruits and vegetables compared to 0 percent of those living above poverty.

A relationship between poverty status and the desire for more nutritional knowledge was also found. Statistical analysis revealed a significant relationship between poverty status and the perception that knowing how to prepare foods and the health benefits of foods would make it easier to consume more fruits and vegetables (p= .036, Fisher's exact test). Based on the results, 50 percent of those living above poverty reported that knowing how to prepare foods and more knowledge about nutrition and health benefits would make it easier to consume more fruits and vegetables compared to only 8.3 percent of those living below poverty.

Food secure and food insecure. Analysis demonstrates a highly significant and very strong relationship between food security status and the perception that more street vendors, mobile vendors, produce stands, and farmer's markets in Fellsmere would make it easier to consume more fruits and vegetables (x^2= 10.780, p= .001, Phi= .632). Approximately 78.6 percent of food secure participants reported that street and mobile food places would make it easier for them to consume more fruits and vegetables compared to 15.4 percent of food insecure participants.

Food Store Survey Results

Six of the nine local food stores that accept SNAP benefits were surveyed to assess the affordability of foods using the USDA Thrifty Food Plan (Cohen 2002). Three different *types* of stores were surveyed: one *other* store which represents a national chain that sells food and non-

food goods, three local *ethnic* stores that sell Hispanic and Latino foods, and two *gas stations* that also offer a wide selection of groceries. The data collected from the food stores illustrates several key features of the Fellsmere food environment: there are many missing foods at each store according to the Thrifty Food Plan; food store type influences the availability of specific foods; and there is unequal access to specific types of foods. What is not represented in this data is the fruits and vegetables at the local produce stands or small shops that primarily sell produce and do not accept SNAP benefits. According to the SNAP retailer website, only one produce stand accepts SNAP benefits in the area.

Total Missing Items

According to the Thrifty Food Plan, there is a deficit in the variety and availability of foods in Fellsmere. Table 4.9 below shows that the food stores surveyed are missing 31-55.2 percent of the total items on the food list.

Table 4.9. Total Missing Items by Store

Store	Store Type	N	%
1	Other	27	31%
2	Ethnic/Specialty	38	43.7%
3	Gas/Grocery	46	52.9%
4	Ethnic/Specialty	34	34.5%
5	Ethnic/Specialty	30	34.5%
6	Gas/Grocery	48	55.2%

The number of missing items is partially influenced by food store type. Table 4.10 illustrates the differences in the percentages of missing foods by food store type with gas/grocery stores missing an average of just over half (54 percent). The other store is missing the least amount of items (31 percent), and the ethnic food store is missing only a negligible amount more (39 percent).

Table 4.10. Average Percentages of Missing Items by Stores Type

Store Type	%
Other	31
Ethnic and Specialty	39
Gas and Grocery	54

Missing Food by Food Group

In total, there are many missing foods in Fellsmere food places. However, when missing food items are evaluated by specific food categories, a pattern of unequal access to specific food groups emerges. Table 4.11 details the missing food items by food group and store.

Table 4.11. Missing Food Items by Food Group and Store

Store	1		2		3		4		5		6	
Food Category	N	%	N	%	N	%	N	%	N	%	N	%
Fruit, Fresh	5	100	3	60	5	100	2	40	3	60	3	60
Vegetables, Fresh	7	100	1	14.3	7	100	0	0	2	28.6	7	100
Fruit, Canned	0	0	2	100	0	0	0	0	0	0	0	0
Vegetables, Canned	1	33.3	2	66.6	1	33.3	1	33.3	0	0	0	0
Fruit and Vegetables, Frozen	1	20	5	100	4	80	5	100	5	100	5	100
Breads and Grains, Fresh	3	42.8	5	71.4	4	71.4	3	42.8	3	42.8	6	85.7
Breads and Grains, Dry	2	25	4	50	4	50	3	37.5	1	12.5	2	25
Dairy Products, Fresh	0	0	4	80	3	60	3	60	1	20	3	60
Dairy Products, Canned	0	0	0	0	0	0	1	100	0	0	0	0
Meat & Meat Alternatives, Fresh	3	42.9	3	42.9	5	71.4	4	57.1	3	57.1	5	71.4
Meat & Meat Alternatives, Frozen & Canned	1	20	0	0	2	40	3	60	1	20	1	20
Fats and Oils	0	0	0	0	1	25	0	0	0	0	1	25
Sugars and Sweets	2	22.2	4	44.4	5	33.3	3	33.3	4	44.4	5	55.5
Other Food Items, optional	2	10.5	5	26.3	6	26.3	6	31.6	6	31.6	10	52.6

Clearly, some food groups are completely available while other groups are non-existent. Table 4.12 shows the availability of each food category across all the stores surveyed in Fellsmere. The groups that are most often missing in the food stores include: frozen fruits and vegetables (83.3 percent), fresh fruit (70 percent), fresh vegetables (57.2 percent), and fresh meat and meat alternatives (57.1 percent). The food groups most represented

with the least amount of missing items are: canned dairy products (0 percent), fats and oils (8.3 percent), canned fruit (16.6 percent), frozen and canned meat and meat alternatives (26.7 percent), and canned vegetables (27.8 percent). The food stores appear to be plentiful in non-perishable food items but lacking in fresh foods options.

Table 4.12. Missing Food by Food Category Across All Stores

Food Category	%
Fruit, Fresh	70
Vegetables, Fresh	57.2
Fruit, Canned	16.6
Vegetables, Canned	27.8
Fruit and Vegetables, Frozen	83.3
Breads and Grains, Fresh	59.5
Breads and Grains, Dry	33.3
Dairy Products, Fresh	46.6
Dairy Products, Canned	0
Meat and Meat Alternatives, Fresh	57.1
Meat and Meat Alternatives, Frozen & Canned	26.7
Fats and Oils	8.3
Sugars and Sweets	38.9
Other Food Items, optional	29.8

Missing Fruits and Vegetables

The range for missing fresh fruits and vegetables by store also varies greatly: 16.6-100 percent (see Table 4.13). Ethnic and specialty stores had the greatest availability of fresh fruits

Table 4.13. Missing Fresh Fruits and Vegetables by Store

Store	Store Type	N	%
1	Other	12	100%
2	Ethnic/Specialty	4	33.3%
3	Gas/Grocery	12	100%
4	Ethnic/Specialty	2	16.6%
5	Ethnic/Specialty	5	41.6%
6	Gas/Grocery	10	83.3%

and vegetables, and the other store had the least—missing 100 percent of the fresh fruits

and vegetables on the food plan (see Table 4.14). The average missing percentage of fresh fruits and vegetables across all stores was 62.5 percent.

Table 4.14. Average Missing Fresh Fruits and Vegetables by Food Store Type

Store Type	%
Other	100%
Gas/Grocery	91.6%
Ethnic/Specialty	30.5%

Food Store Survey Conclusions and Observations

While surveying each store several key observations stood out that related to the use of the food store survey based on the USDA Thrifty Food Plan:

- The food list is not appropriate to use in a Mexican-American community. Many of the ethnic food stores surveyed have a plethora of foods that are not included on the list. However, of note, results from the food store survey indicate that ethnic food stores have the lowest total missing fresh fruits and vegetables.
- The bias in the types of foods on the list allows for false representation of the food environment. For example, the other food store has the lowest total missing number of food items, yet it also has the highest number of missing fruits and vegetables. This particular store is the first store that I surveyed. The following is an excerpt from my participant observation notes on the day I collected data.

> More than anything, I was struck by how idealistic the USDA Thrifty Food Plan is. Only the most self-controlling, non-indulgent person could actually shop here and stick to such a food list. You would have to ignore the aisles of cookies, chips, crackers, and completely forget the possibility of eating fresh fruits and vegetables. The store did have more foods on the list than I expected…There was still a stark dearth of produce. (Field Notes, July 5, 2013).

- The USDA list does not collect any kind of descriptive information that reflects quality, such as freshness or nutrient content. Further, the list completely discounts agency or food preferences as an important factor in what foods people buy.
- In stores with limited options, there was typically only one brand and one size of an item available.

Participant Observation Results

Gardening in Fellsmere

During my time as an intern, I was able to document several important aspects of gardening in Fellsmere, such as community facilitators for small-scale agriculture, garden crops both in home gardens and the community garden, and expressions of cultural identity within the garden.

Civic support for small-scale agriculture appears to be strong. A biweekly animal sale evolved into a new farmer's market while I was in the field. I attended the animal sale several times and had to refrain from buying small baby rabbits, chickens, and goats. Thankfully, I succeeded and completed my fieldwork with no new additions! Fellsmere residents brought their small livestock to sell at a residence on the outskirts of town. People parked next to a large open field and set up shop with animal cages on the ground or in the back of their pickup trucks. In the fall, this small market was absorbed into the new farmer's market that takes place biweekly at city hall. The farmer's market includes more than just livestock. It has fresh produce, baked goods, clothes, furniture, and even a local popsicle stand that sells frozen mango chili and strawberry delights. The Fellsmere Community garden has a stand at the market, and, to the best of my knowledge, this is the first time the garden has sold produce outside of members' social network. The first several farmer's markets were primarily attended by people from outside of

Fellsmere; hopefully, more Fellsmere residents are attending since my last visit in the winter of 2013.

Table 4.15 is a list of food plants compiled from my participant observation notes. Many of the foods listed below are associated with Mexican and Mexican-American cuisine and diets.

Table 4.15. Crops Grown in Fellsmere. (Scientific names not provide due to the widely known food crops listed here.)

Crop Name	
Eggplant	Spinach
Peppers (Hot)	Corn
Cabbage	Tomatillos
Brussels Sprouts	Nopales (Cactus)
Sweet Potato	Bell Peppers
Jicama	Radish
Rosa de Jamaica	Collard Greens
Calabeza de Mexico (squash, zucchini)	Kale
Squash Blossoms	Mint
Tomatoes	Rosemary
Beets	Cilantro
Pumpkins	Basil
Carrots	Alfalfa
Green Beans	Papaya Trees
Okra	Yuca Root
Banana Trees	Lettuce
Watermelon	Cucumber
Onions	Sprouts
Chard	Micro Greens

A few of these particular crops were highly prized and talked about with a zeal that was not reserved for run of the mill green beans. Certain plants seemed have a meaning that was different, special, or unique, such as jicama, nopales (see Figure 4.1), and tomatillos. I was asked several times by garden members if I had ever tried cactus. I heard the same question posed to other visitors to the garden. In a sense, it is as if the nopales represent an identity that is both recognized as other and foreign and a source of pride. Similarly, on one of the rare and last occasions I worked in the garden, another conversation demonstrated the garden as a place of

cultural practice and exchange. Interestingly, this example has absolutely nothing to do with food or plants. A gardener and I spoke at length about the intricate details and customs of weddings in our respective cultures. The conversation was spurred by my upcoming nuptials.

Figure 4.1. A Section of Garden #2 Dedicated to Growing Cactus.

As the details were picked over while watering and planting, I was reminded that if it were not for the *space* the garden provides this conversation might have never happened.

Another concept, legacy, was spoken about often by a few members. The term seems to encompass a string of identities for garden members that I am not sure I still fully understand or have the capacity to unravel. The farmworker legacy, the immigrant legacy, and the Mexican-American legacy seem bound into one with this word. Portions of the qualitative interviews also mirror this same sentiment. The following is an excerpt from my field notes on a question I posed to a garden member about the use of the word "milpa" in another community garden's name. "Milpa is very powerful to us; it is our legacy, our word. [In reference to the Fellsmere Community Garden] This project lets you bring your memories back." This idea of legacy was also extremely salient in the community garden discussions to create a new logo. A few

members felt it was very important that the idea of legacy be the foundation for the logo. Specific emphasis was put on legacy as a representation of passing on knowledge to the next generation.

Qualitative and Quantitative Triangulation

The results from the interviews, food access and security survey, and food store survey capture very similar snapshots of the Fellsmere food environment and household and community nutritional concerns.

Interview participants described low-access to a variety of high quality fruits and vegetables across multiple stores that primarily offer small portions of foods and goods with little emphasis on organic products. This is confirmed by surveys respondents' responses to what would make it easier for them to consume more fruits and vegetables, 35.7 percent expressed that more or better selection at food stores would make it easier. Similarly, results from the food store survey further support interviewee's perceptions: the top four missing food groups include both fresh and frozen fruits and vegetables as well as fresh meat and meat alternatives. These stores are also not missing just *some* of these foods from these groups. Almost 83 percent of frozen fruits and vegetables, which are often more convenient to use, are missing from all the stores surveyed. In some stores, 100 percent of the frozen produce is missing. Fortunately—or not—the average of missing foods is lower for fresh fruits (70 percent) and fresh vegetables (57.2 percent) but these numbers are still not sufficient.

Affordability and time as a barrier were the two most salient household and community nutritional concerns that were described in interviews. Respondents of the food access and security survey share these same concerns. The number one thing that would make it easier for over half (60 percent) of participants to consume more fruits and vegetables is price. The general

food security question findings also support that price is a significant factor that influences the purchase of fresh fruits and vegetables for 85.7 percent of participants. Further, affordability and cost (53.6 percent) and time (32.1 percent) are the most reported barriers to obtaining fresh produce. This factor is also demonstrated in the Six-item HFSSM findings, half (50 percent) of participants reported that they sometimes could not afford to eat a balanced diet. All the data collected for this project suggests that the affordability and cost of food is one of the largest barriers to healthy eating. Time, however, as a factor in food choices was not very salient in survey data, as opposed to what was mentioned in the interviews. Only 28.6 percent of participants felt more time available to cook and prepare foods would make it easier for them to consume fruits and vegetables. Similarly, the importance of convenience and ease of preparation in food choice is less pronounced in the survey data. Only six participants (20.7 percent) choose convenience and ease of preparation as one of three food choice factors significant to them.

Chapter Five: Discussion

Ethnographic anthropological data is vital to the building of a CFS framework. While system level approaches and strategies are equally important to increase access to healthy foods, individual and cultural perceptions of the food environment, food choices, and small-scale gardening strategies are necessary in order to create *appropriate* and *relevant* food systems in communities across the United States (Mader and Busse 2011). To encourage food system participation, strategies must reflect community members' needs and wants. Anthropological methods allow us to gather contextual, community-specific data on environmental and food knowledge, practices, and perceptions that are assets to building CFS. Further, an anthropological CFS attends to the social construction of barriers and benefits to participating in food systems work among groups that may be largely left out of mainstream dialogues. For example, in this community, results suggest that specific attention needs to be given to how people perceive agricultural work. The qualitative and quantitative data presented in this thesis serves as a case study for how CFS is implemented and measured at the ground level. The findings are first compared to what is known in the literature on CFS initiatives and strategies. Then, the data is used to illustrate key considerations for building CFS theory. Limitations of the research design are also discussed, as well as how this project is relevant to applied anthropology.

Fellsmere Community Food Security and Nutritional Concerns

Participation Influences Perception

Participant descriptions of the Fellsmere food environment as a space lacking in variety and high-quality produce reflects similar findings in research that focuses on unequal access to foods in the United States as a result of social disparities (Heynen et al. 2012; Mader and Busse 2011; Winne 2008). Interview participants stressed the importance of organic and local foods. Other research has unearthed similar findings. For example, Minkoff-Zern (2012) documents a preference for locally grown organic foods among farmworker gardeners in California. In addition, the finding from this thesis research suggests a strong relationship exists between participation in FWAF gardening activities and perceptions that the food environment is deficient because it lacks specific kinds of foods. Cox et al. (2008) dubs a similar phenomena among CSA members as "the graduation effect"—a shift in consciousness that occurs as part of consumer participation. The degree to which garden member participation in workshops and local food education is influential is not entirely clear; however, the high level of agreement between participants on the desire for and importance of high-quality foods suggests that involvement in these activities reinforces a culture that values specific types of foods that extend beyond how we typically think of food choice and preference at the individual and household levels. Additionally, findings from participant observation and interviews suggest that food choice is also influenced by garden members' cultural backgrounds. Some garden members identified specific crops in the garden as symbolic of Mexican-American identity. For example, jicama and nopales seemed to exist in a separate taxonomy—one that bound plant, food, and identity together. Further, the importance of specific foods was also highlighted at community events. I attended several garden workday events hosted by the community garden for volunteer

groups. These workdays usually culminated in an extravagant lunch with Mexican rice, lentils, tortillas, and other ethnic dishes alongside bowls and plates of seasonal garden produce. In general, interview results on how garden participation specifically affected dietary intake were mixed. Some participants reported that they eat more vegetables as a result of gardening while others did not feel that participation increased their vegetable intake. This finding may suggest that while preference may change due to garden participation, other factors, such as cost, may hinder or facilitate changes in dietary intake.

Very little literature explicitly within CFS examines the relationship between active participation in CFS strategies and changing perceptions of food access and availability. Hughner et al. (2007) stress the need for more psychographic—the values, ideals, and interests of consumers—research that focuses on attitudes towards organic foods. In order to create meaningful CFS strategies, we *must* understand the mechanisms by which preferences change. Ethnography is able to capture changing preferences because it is rooted in the day-to-day realities of community members' experiences and perceptions. Further, ethnographic methods allow us to deeply study a specific group of people for long periods of time, which in turn captures historical data across social, community, and individual levels of inquiry.

Nutritional Concerns

In both the qualitative and quantitative data, the two most salient concerns listed as barriers to eating fruits and vegetables are affordability and time. Both these barriers are demonstrated in the literature across geographic and ethnic boundaries (Eikenberry and Smith 2004; Drewnowski and Darmon 2005; Glanz 1998; French 2003). Further, the affordability of foods may have interesting implications in evaluating relevant factors for CFS. As Allen (1999) argues, "With poor people already paying higher prices for their food and spending a higher

percentage of their incomes on food than do middle-income people, organic food may be beyond their reach" (126). Statistical results illustrate the strength of the relationship between poverty and food security status in the survey sample. These findings highlight and support Allen's concerns. The food security results also suggest that financial constraints play an important role in food choice. The majority of participants (85.7 percent) responded that they had to compromise on fresh fruits and vegetables because of cost. Similarly, according to results from the Six-item HFSSM, half of participants felt they could not afford to eat a healthy diet. Interview participants reported time as a barrier to good nutrition; however, the survey data suggests that time may not necessarily be a primary, deciding factor in food choice. Only six survey participants deemed ease of preparation/convenience an important factor in food choice. Other factors, namely freshness/quality, price, and health/nutrition were more important influencers of food choice. Webber and Dollahite (2008) report similar findings among a sample of low-income food head-of-households that were interviewed about their perceptions of sustainable foods. Participants reported that freshness, quality, and price were important factors to consider when buying groceries. Similarly, Minkoff-Zern (2012) found that the quality and freshness of food was most important to Mexican immigrant gardeners; organic, natural foods were more reminiscent of the foods available in Mexico. Borre et al. (2010) report a similar finding among Mexican farmworkers in eastern North Carolina; participants preferred "the tastier and fresher" foods from home (452).

The food access and security survey results also indicated low vegetable consumption among some participants. The majority (62.1 percent) of respondents ate less than the recommended four to six daily vegetable servings for adults (U.S. Department of Agriculture and U.S. Department of Health and Human Services 2010). However, participants' vegetable

consumption is comparable if not slightly higher than state and national averages. In 2009, only an average of 26.3 percent of Americans and 28.3 percent of Floridians consumed vegetables three or more times a day (Centers for Disease Control and Prevention 2010). In comparison, 33.5 percent of the food access and survey respondents report eating three or more servings of vegetables a day. Unfortunately, despite the similarity of the survey sample to state and national averages, vegetable consumptions is still alarmingly low when considered alongside the expensive and deadly national rates of diet-related chronic diseases (U.S. Department of Agriculture and U.S. Department of Health and Human Services 2010).

The Ideal Fellsmere Food Environment

Participant suggestions for how to best improve the Fellsmere food environment clearly align with CFS strategies. Participants voiced support for farmer's markets, nutrition education, and a healthy take-out alternative. However, not all of these suggestions for improving the food environment are explicitly related to CFS. The participant who promoted a stronger trade network among producers explicitly advocated for the trade of goods rather than typical consumer producer transactions. This strategy relies more on informal networks outside of market dynamics, hinting at strategies that are more aligned with food sovereignty principles. This participant's ideal food environment succinctly reflects the food sovereignty explanation of Atlieri (2009): "The emerging concept of food sovereignty emphasizes farmers' access to land, seeds and water while focusing on local autonomy, local markets, local production-consumption cycles, energy and technological sovereignty, and farmer-to-farmer networks" (104). How producer-producer and consumer-producer relationships are created and maintained in the United States is still debated. Unfortunately, in practice, true food equality may be absent from many of the strategies associated with alternative food systems. Fairbarn (2012) points to the exclusive

nature of alternative food movements in the Unites States that are predominately composed of white middle-class individuals and communities. Strikingly, food sovereignty was developed by and for agrarian peasants, yet in the United States, groups of similar identification, such as farmworkers, have largely been excluded from discourses on how to apply these principles (Fairbairn 2012). The Fellsmere Community Garden is a powerful example of how marginalized communities with agrarian knowledge and skill can begin to negotiate participation in line with food sovereignty ideals and neoliberal markets simultaneously.

The survey results yielded interesting findings on access to food retailers in the community. Almost 40 percent of respondents live more than five miles from where they shop for their food. Similarly, many focus group participants discussed the need to leave Fellsmere in order to find specific foods or larger grocery stores. This may be partly explained by the high number of missing food items and complete absence of supermarkets reported in the food store survey findings. The lack of nearby supermarkets is especially problematic for the low-income participants who were more likely to want closer access to a grocery store. Lack of access contributes greatly to experiences of food insecurity as Walker et al. (2010) explains:

> A major cause of food insecurity is the lack of financial resources. Families with low financial resources often go hungry, are malnourished, and experience changes in psychological, physical, or developmental states or diminished productivity, which results from inadequate food intake due to limited access to food as a result of store locations or financial constraints. (455)

Results from the interviews, food store surveys, and food and access survey, suggest that Fellsmere is a *food desert*, a specific kind of food environment characterized by few affordable, healthy foods and food stores and, instead, plentiful in cheap, unhealthy foods and food stores (Risgby et al. 2012; Jiao 2012). Problems associated with food deserts are further exacerbated by

the shifting demography of food store environments in both urban and rural communities. According to Gantner et al. (2011) the market shares of supermarkets and grocery stores have declined over the last several decades. Non-traditional food stores, such as dollar type stores, are replacing grocery giants rapidly. For example, between 1994 and 2005 the number of dollar stores that sell food almost doubled (Gantner et al. 2011). In Fellsmere, the types of food stores present reflect this shift. Alarmingly, research suggests that living in a food desert contributes to diet-related negative health outcomes, including an increased risk for obesity (Walker et al. 2010).

The Importance of Culture

CFS strategies are critiqued for de-emphasizing the cultural importance of foods (Heynen et al. 2012). The necessity and primacy of recognizing the importance of cultural practices and perceptions of food production and preparation was illustrated in the qualitative data through the generational changes in food preferences. A few of the interview participants spoke of the differences between adult and children food preferences. Acculturation can be a powerful factor in diet quality, food security, and food choice (Ayala et al. 2008; Gray et al. 2005; Neuhouser 2004; Mazur et al. 2003). Gray et al. (2005) explains the acculturation factor.

> Food choices of newly arrived immigrants are affected by availability of food, differences in schedules, cultural differences, and other factors (e.g., the community structure). Integration into a new culture involves great changes for immigrants, including adjustments to differences in language, values, the concept of time, family ideology, and food habits. Hispanic immigrants to the US are varied in cultural, social, and economic backgrounds; the immigrant's country of origin, the city of relocation in the US, and the financial situation of the immigrant are among the factors that affect whether changes in food habits will be profound or minimal. Common ingredients, such as spices and condiments, in the diets of certain cultural groups may be scarce or inaccessible in the rural US. Additionally, the cost of certain foods may affect purchasing decisions. Thus, dietary acculturation is sure to accompany social integration in the US. (352)

In a review of 34 articles on dietary intake and acculturation status, Ayala et al. (2008) report mixed results across research on how acculturation specifically impacts dietary changes. Their review suggests a few key findings: (1) less acculturated Latino are more likely to consume more fruits and vegetables and less sugar than their highly acculturated counterparts, and (2) acculturation does not effect overall dietary fat intake. However, acculturation does influence what types of fatty foods are consumed—for example, highly acculturated Latinos are more likely to consume fats from fast foods and snack foods, and less acculturated Latinos are more likely to consume fat from whole milk and fried foods. Research also indicates that factors outside of the home have a great impact on children's food preferences. Gray et al. (2005) report that in interviews with Hispanic immigrants, parents expressed concerns over the foods their children eat at school. Similar to the findings from this thesis research, the parents felt that their children were eating worse as a result of developing a preference for school foods and becoming "American." The effects of acculturation on children's and adolescents' diets may be especially pronounced (Gray et al. 2005) as youth seek to fit in to the dominant culture.

The data also illustrate the importance of cultural identity and pride in food choice. Specific foods marked group membership, such as nopales. Garden members were excited to share these foods and particular environmental knowledge with others. CFS strategies need to promote the use of cultural foods and knowledge in order to honor and harness the influence of cultural identity and pride. Previous research suggests that placing an emphasis on cultural foods in nutrition education can be a powerful motivator for behavioral change (see Rody 1978 and Cassel 1997 for examples).

Home and Community Gardening

Perceived Benefits

Participants discussed a variety of perceived gardening benefits, including cost savings, increased access to fruits and vegetables, and emotional reward. Previous research on community gardens reports similar benefits (Draper and Freedman 2010). However, one perceived benefit emerged as unique to this community—the sense of control and independence that participants associated with growing their own food. This benefit echoes the ideals of food sovereignty advocates[1] who call for "healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems'' (Alkon and Mares 2012:347). Building local capacity through food systems in communities that are largely marginalized by the industrial food system has powerful implications for redefining how we conceptualize access. However, some advocates are wary of how food sovereignty ideals are translated to action in the Global North. Fairbairn (2012) voices concerns over the adaptation of food sovereignty to the United States:

> As a frame created by some of the most marginalized people within the global food system, it facilitates attention to structural discrimination of all kinds. Thus far, however, this transformative potential has yet to be fully realized in the US context. This may stem from the twin tendencies of US organizations either to add food sovereignty into their repertoire primarily as a way of framing international issues, or in the domestic context, as rough shorthand for local control of the food system. This reframing forfeits much of the frame's potential for addressing social injustice in the food system. (227)

However, I postulate, based on the qualitative data, that Fellsmere garden members conceptualize "local control" intimately, in a way that embodies their desire for independence from the industrial agricultural system. This sentiment may be especially personal among groups

[1] I do not want to detract or in any way diminish participants' perspectives on food production, but I am compelled to note that the garden members emphasis on the importance of control over food production may be informed by the Fellsmere Community garden's participation in national and international discourse on food sovereignty, including membership with La Via Campesiña, one of the most prominent international food sovereignty organizations.

of people who have close working experiences with the industrial agricultural system. An interesting parallel exists between interview participants desire for more control over their own food production and some of the experiences participants related about industrial agricultural farm work. Further, the emphasis that gardeners placed on sharing knowledge and learning from one another is in stark contrast to the descriptions of previous industrial agricultural experiences of a few participants. For example, one participant felt that he/she had learned little because he/she was only involved in harvesting crops and not any other step of the production process. In industrial agriculture, knowledge is not shared but rather the property of exclusive actors and privileges specialization (Ikerd 1993) over self-sufficiency.

Cultural Exchange

Previous research suggests that gardens are important places for the building of social capital and community (Glover 2004), community resilience (Tidball and Krasny 2007; Shavaa et al. 2010) and as spaces of cultural maintenance, a way for immigrants to connect to the past while placing roots in the present (Airiess and Clawson 1994; Baker 2004; Morgan 2005). The qualitative gardening data demonstrates a deep commitment participants feel toward their community. Despite the numerous gardening challenges described by participants, many expressed that they feel it is their responsibility to share what they have learned with others in the community. A few participants also communicated a desire for younger community members to be more involved in the garden. The emphasis on sharing and learning positions the garden as a space of cultural exchange that reaffirms "the place-based politic" that Baker et al. (2004) describe as "sociocultural and geopolitical meanings imbued in community-garden landscapes" (322). Community garden research also suggests that gardeners perceive their ability to contribute food to their community as a benefit of garden participation. For example, Baker et

al. (2013) surveyed African-American community garden members in Missouri, participants reported:

> They liked the opportunity to give to the community and share the fruits of their labor. Making a difference gave them a sense of satisfaction and accomplishment…Lastly, participants highlighted the benefit of teaching the community a skill that enabled them to help themselves. One community member noted that this was like the Bible verse suggesting that if you give a man a fish he will eat for a day, but when you teach a man to fish he has the ability to eat for a lifetime. (526-7)

Baker et al. (2004) document a similar sentiment among a group of older Chinese immigrant gardeners, many of whom farmed in their homeland. The Chinese garden members with agricultural skills "share their expertise readily" with the other less-experienced gardeners (315). Similarly, gardens serve as facilitators for cross-cultural exchange and reciprocity among neighbors. Airess and Clawson (1994) document Vietnamese immigrant gardens in New Orleans as "powerful [symbols] in the maintenance of ethnic identity" for older farmers (30). Unfortunately, the authors doubt how many young Vietnamese-Americans will continue this tradition Airess and Clawson (1994) note:

> Although ethnic foodways appear to be among the traditional culture traits most resistant to change, the demand for market-garden products will almost certainly decline as the acculturation process continues. Socioeconomic mobility associated with the acculturation process engenders loss of status for traditional foods and concomitant increased use of commercialized American foods. The acculturation process may ultimately lead to the disappearance of the market gardens. (30-1)

Morgan et al. (2005) report similar concerns among immigrant gardeners in Toronto. Younger generations may not have the same need to "dwell in both the homeland and the new country…to symbolically capture the homeland in the new land" (97). While youth do participate in the Fellsmere Community Garden, interview participants expressed a strong desire for more youth involvement. Similar to the examples highlighted above, participants may particularly want to pass on and share their knowledge as part of their cultural identity.

In interviews with low-income gardeners, Baker et al. (2014) found that participants stressed the importance of partnerships as imperative to the success of their community garden. Individuals and organizations provided tangible, instrumental support in the form of manual labor, tools, and money. These relationships were also reciprocal. Gardeners reported that they enjoyed getting to work with "different organizations and individuals and the strong partnerships that resulted from their efforts" (525). Participant observation and interview results also indicate that support from other organizations, personnel, and volunteers are key to the success of the Fellsmere Community Garden. Further, the collective social capital built in community gardens also contributes to community capacity. Shaava et al. (2010) presents case studies from diverse locals, including gardens in New York City and Zimbabwe. In both examples, the collective environmental memory that immigrants and internal migrants brought with them during resettlement strengthened and enriched the biodiversity and resiliency of their new communities. In Fellsmere, the skills that farmworkers and other gardeners share similarly contribute to local biodiversity and capacity.

Theoretical Framework Application

The vastness of the factors that influence CFS can be overwhelming. The theoretical frameworks used to guide the research questions, data collection, and analyses were extremely useful in teasing out which factors affect CFS. A strength of SEM is the ability to use it to organize relevant factors that impact determinants of behavior into five levels of analysis: intrapersonal, interpersonal, organizational, community, and policy (McLeroy et al. 1988). However, the political economy of health is also needed to understand how economic and political processes create and reinforce inequality in the industrial agricultural system; many of these determinants, such as the need for cheap farm labor, a dependency on pesticides, and price

competition, ultimately drive and shape the farmworker experiences described by participants. Baer (1982) notes, "the 'political economy' of health is in essence a critical endeavor which attempts to understand health-related issues within the contexts of the class and imperialist relations inherent in the capitalist world-system" (1). This paradigm is also relevant to issues of access and inequality in the industrial agricultural food system, a term used here to denote the intricately connected agricultural system and deficient food environments explored in this thesis. For example, a few of the farmworkers in this sample were very attuned to the dangers of working with pesticides. Alarmingly, the current industrial agricultural system is functional because of the heavy use of pesticides to counter the ramifications of poor farming practices and underpaid, exploited human labor. Thus, farmworkers' experiences are directly tied to what Altieri (2009) describes as the "increasingly reshaping [of] the world's agriculture and food supply, with potentially severe economic, social, and ecological impacts and risks" (102). Farmworkers also experience stigma as a result of a hierarchal capitalistic system in which "the affluent may often choose to retreat physically from the more harmful effects of environmental deterioration…members of the working class generally have much less choice in such matters" (Baer 1982:14). Both the SEM and political economy are necessary to augment the shortcomings of CFS; they provide a critical lens to evaluate how human health is shaped by neoliberal determinants at different scales. Political economy offers a critical, macro examination of the structural factors that lead to individual, household, and community food insecurity. These structural factors are further identified by incorporating the SEM approach, which demonstrates how specific factors interplay with each other at multiple levels, including both micro and macro perspectives. The SEM adds a more holistic, dimensional perspective to political economy.

One shortcoming of the theoretical framework was evident after reviewing the results. SEM, political economy, and CFS do not highlight the extent to which participation in small-scale agriculture cultivates meaning and purpose for garden members that extends beyond basic food provisioning. Much of the literature on gardens demonstrates how gardening ties people to place, identity, and community. An anthropological CFS stresses the cultural meaning of gardening spaces as places where the important work of cultural maintenance, identity, and cross-cultural communication occur. While SEM and political economy are useful tools for identifying the associations between and structural causes of the numerous factors that shape community food security, I believe agro ecology[2]—the scientific and philosophical foundation of food sovereignty—contributes more to our understanding of community food security by explicitly binding culture and agriculture together. Altiere and Toledo (2011) describe agro ecology:

> Although traditional agro ecosystems…evolved in different contexts and geographical areas, such systems exhibit several common remarkable features..: (1) high levels of biodiversity that play key roles in regulating ecosystem functioning and also in providing ecosystem services of local and global significance; (2) ingenious systems and technologies of landscape, land and water resource management and conservation that can be used to improve management of agro ecosystems; *(3) diversified agricultural systems that contribute to local and national food and livelihood security; (4) agro ecosystems that exhibit resiliency and robustness in coping with disturbance and change (human and environmental), minimizing risk in the midst of variability; (5) agro ecosystems nurtured by traditional knowledge systems and farmers innovations and; technologies and (6) socio-cultural institutions regulated by strong cultural values and collective forms of social organization including normative arrangements for resource access and benefit sharing, value systems, rituals, etc.* (591; emphasis added)

The Fellsmere Community garden members exuded pride and honor in their descriptions of the garden. In a very real sense, the garden affords physical space for community members to

[2] I would like to note and give credit to how I first heard of "agro ecology." One day, a garden member asked me, while we were working in the garden, what agro ecology meant to me; at the time, I did not even know the term existed. Since then, I have read more on the tenets of agro ecology and come to believe that it is extremely relevant to immigrant community gardens. Without the Fellsmere Community Garden, I likely would have never stumbled upon this relevant philosophical coupling of agriculture and culture.

cultivate dignity, meaning, and identity in a system that has led to "systematic dispossession from the land and exploitation of …labor" (Minkoff-Zern 2012:13). I believe that the participant who spoke of the stigma and shame that is associated with industrial agricultural farm work sees the Fellsmere Community Garden as a way to restore dignity and reclaim a positive agrarian legacy.

Recommendations For An Anthropological CFS Theory

Despite the criticisms of CFS found in the literature, especially the emphasis on market-based strategies (Allen 1999; Alkon and Mares 2012; Anderson and Cook 1999; Heynen et al. 2012), results of the interviews with gardeners provide support for strategies associated with CFS to create "new economic spaces" that link producers and consumers (Allen 1999). However, the qualitative results also show the need for CFS to be accompanied by theory that examines how class relations and political and economic processes affect local food environments and, thus, health (Himmelgreen and Crooks 2005). Gottlieb and Fisher (1996) explain the relationship between community food security, globalization, actors, and the environment in the following quote:

> The globalization of the food system and the influences it has had on particular actors within the system (farmers, marketing, retail, etc.) has created major environmental as well as equity or "justice" impacts. This includes the way food is grown, the distance it travels to reach its final end market, the nature of the food product (or its durability, as Friedmann describes it) and what food is available or accessible… Each of those food system elements contain an environmental core… as well as broader social questions (community access and control of a production system; sustainable development; economic security)(200).

Further, the findings on CFS in Fellsmere attend to the necessity to collect information across multiple scales, something that the SEM model addresses more readily. Both time and money are barriers in the Fellsmere community for food access. However, agrarian knowledge in this specific community supports the feasibility for creating multiple alternative food networks.

All three are key features of the challenges and facilitators to community food security in Fellsmere, but they are the result of very different social processes and realities that must be acknowledged as independent yet interconnected. Mader and Busse (2011) argue for more research that moves beyond a singular focus on education and behavior change:

> Although personal choice and dietary behaviors are important determinants of health, multiple factors affect how and what we eat: culture, social networks, behavior, economics, and the environment. The social ecological model is a widely used, evidence-based framework that can guide communities in making changes at individual, family, community, and policy levels to support healthier diets. Because where we live shapes what we eat, strengthening community-based food systems at multiple levels is a necessary strategy to create healthy food environments. (46)

Tensions between competing food system paradigms must be quelled (Gottlieb and Fisher 1996; Feenstra 2002; Campbell 2004) in order to create a unifying adaptive, reflexive theory (Campbell 2004). While the arguments against CFS hold certain truths, I suggest that a middle ground should be reached between CFS and food sovereignty advocates until communities can control their own agricultural systems *without* participating in market practices. CFS strategies can be used in tandem with food sovereignty principles. As this case study demonstrates, a middle ground is a far likelier and more practical expression of how food sovereignty is utilized in the United States.

Participants in this study stressed the challenges of community garden participation while juggling the multiple demands of work and family. Nutrition education needs to refocus on strategies that address how structural barriers, such as income, poverty, and social disparities, influence diet. An anthropological CFS theory must recognize that price is a large motivating factor for food choice and promote the use of ethnographically-grounded methods to find food system solutions that address this issue. Further, an anthropological CFS must acknowledge that

strategies to reduce the financial burden of obtaining high-quality produce may be different across communities. Participants offered several suggestions for strategies that may be useful in reducing the cost of food in their community, such as stronger trade networks and home and community gardening, but ethnographic research is needed to determine what strategies are appropriate for other communities. Additionally, nutritionists must work to create applicable interventions for communities with agrarian knowledge and skill (Minkoff-Zern 2012). Agro ecology offers a systemic approach to integrate both agricultural skill and community capacity. Altieri (2009) writes:

> New approaches and technologies involving application of blended modern agro ecological science and indigenous knowledge systems spearheaded by thousands of farmers, NGOs, and some government and academic institutions have been shown to enhance food security while conserving natural resources, biodiversity, and soil and water throughout hundreds of rural communities in several regions. (103)

As these understandings develop and are more clearly articulated, applied anthropologists can contribute nuanced data on what types of food systems specific communities desire *and* focus on the global forces that create barriers and challenges to food security.

Interview and Food Access and Security Limitations

There are several limitations of this research that must be acknowledged. First, I spent most of my time in Fellsmere during an off-season when my interaction with community members outside the core garden members was relatively low. As such, sampling bias reflects the participants who were most accessible to me through their degree of involvement in FWAF Fellsmere activities and who spoke English; despite efforts to use a translator, scheduling difficulties proved to be challenging. While every effort was made to elicit participants' views of their community as a whole, this sample is not a sufficient proxy to speak for an entire community. Further, I recognize the term "community" in identifying a group of people is

problematic. I struggled with how to define the community this research represents. As such, I think it is best to say that the interviews represent some of the members and family members of the Fellsmere Community Garden but are not illustrative of the entire farmworker, garden, or Fellsmere community. The garden primarily serves Hispanic farmworker families; however, other community members representing diverse backgrounds also participate in the garden. Any member who was interested in participating in this study was included.

The extremely small sample of participants for the food access and security survey limits the ability to do more sophisticated quantitative analysis. Further, in order to better represent the farmworker community, a larger sample of farmworkers not connected to the garden or FWAF is needed. The participants for the food access and security survey represent a cross section of people who utilize the FWAF office as a food and clothing pantry, residents who attend and vend at the farmer's market, and gardeners connected to the Fellsmere Community Garden. I believe that this particular sample is very cognizant of local food issues. This bias may partially explain some of the responses for the food security questions that probed participants' ability to access *healthy* foods. Based on the qualitative data and my time in the field, I know that the people involved in local food define and interpret *healthy* differently than others.

Directions for Future Research

The results bring to light several key areas that demand more attention from academics. First, greater efforts must be directed at improving CFS measurement tools. Given the irrelevance of the USDA Thrifty Food Plan (Cohen 2002) to this community, CFS tools are needed that are not only culturally appropriate but also adaptable and reflexive (Anderson and Cook 1999). In order to more meaningfully understand the relationships between garden participation and diet, research that incorporates ethnographic gardening data and formal dietary

assessment measures—such as 24-hour dietary recalls, food frequency questionnaires, and free lists is also needed. Finally, cost savings was reported as a salient perceived benefit by gardeners. Quantitative evidence of cost savings as a benefit of gardening is needed to create marketing and outreach materials in communities that struggle with food access and affordability.

Second, a greater emphasis is needed on ethnographic methods that can identify cultural barriers to food security and access. Although only one participant expressed concerns between stigma associated with agricultural work and community members not wanting to participate in the community garden, this concern is an important finding that should be further explored in other agricultural communities in the future. While we must address the physical challenges of gardening, such as time, physical discomfort, and bugs, we also must attend to cultural perceptions of what it means to participate in agricultural activities in communities that experience marginalization and injustice as a result of food system work.

Participants' reports of agricultural knowledge, albeit somewhat varied and broad, support other research that documents gardening skills and knowledge immigrants bring with them through the relocation process (Shavaa et al. 2010). These findings also raise questions on how to define and operationalize agricultural knowledge and skill in communities with mixed cultural and generational demographics. If agriculture knowledge is passed on to the first and second generations, do we still classify this knowledge as immigrant agricultural knowledge? More research is needed that captures agricultural knowledge among diverse gardeners in the United States.

Conclusion

The global industrial agricultural system contributes to ill health, social inequality, and environmental degradation. Fortunately, there are many promising alternatives. These alternatives are rooted in thousands of years of agrarian knowledge and skill. As one participant in this research so eloquently put, these memories and skills just need to be "woken up." Imagine what our global, national, and local food systems would look like if we could harness the centuries of plant and food knowledge that surely still exist in our farms, gardens, backyards, and kitchens. Imagine what our food system would look like if it were not based only on neoliberal markets but also on assets that we collectively already possess. Much work needs to be done to realize a global food system that is both equitable and functional. Hopefully, the findings from this thesis offer some insight into how we can shape and strengthen existing food systems.

Findings from this research suggest that the same barriers to community food security that exist in other communities—specifically the affordability of and time to prepare foods—are also present in Fellsmere. In order to attain true community food security, nutrition educators must begin to implement alternative strategies that utilize community members' skills and assets rather than focus efforts solely on teaching people to "eat healthy" (Minkoff-Zern 2012). CFS and food sovereignty initiatives offer promising alternatives to the status quo of nutrition education. Results from this case study suggest that participation in activities related to CFS, such as community gardens, may have a strong impact on food choice and preference. Clearly, participants in this research wanted more access to high quality, nutritious foods than were present in their local food environment. To remedy this, Fellsmere community members work to increase access to fresh fruits and vegetables in their community by utilizing agrarian knowledge

and the support of organizations and community partners. Garden members emphasized sharing and learning; this emphasis provides the foundation for new imagined food environments. The results of this thesis clearly demonstrate that strategies from both CFS and food sovereignty need to be used in tandem to create alternative markets that are both practical and just. Additionally, the cultural meanings of food and agricultural work are important factors that need to be considered alongside food cost and access concerns. Further, this research contributes to a better understanding of how CFS can be measured and explored in bounded geographical communities.

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Appendices

Appendix A: IRB Approved Materials

IRB Letter of Approval

USF
UNIVERSITY OF
SOUTH FLORIDA

RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

5/20/2013

Susan Tyler, B.A.
Anthropology
4202 East Fowler Ave, SOC107
Tampa, FL 33620

RE: **Expedited Approval for Initial Review**
IRB#: Pro00012901
Title: Food security and access in Fellsmere, Florida: An exploratory study of the Farmworker Association of Florida's community food security intitiatives

Study Approval Period: 5/19/2013 to 5/19/2014

Dear Ms. Tyler:

On 5/19/2013, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents outlined below.

Approved Item(s):
Protocol Document(s):
Tyler_S_IRB_Protocol_FINAL.docx

Consent/Assent Document(s)*:
Tyler_S_Written Informed Consent Interviews_FINAL.docx.pdf, v2 5/10/13
Waiver of documentation of informed consent for survey

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s).

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your study qualifies for a waiver of the requirements for the documentation of informed consent as outlined in the federal regulations at 45CFR46.117(c) which states that an IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval by an amendment.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,

John A Schinka, Ph.D.

John Schinka, Ph.D., Chairperson
USF Institutional Review Board

Interview Recruitment Slip

My name is Susan Tyler; I am a student at the University of South Florida. I will be conducting voluntary interviews as part of a research project. The interviews will include questions about food and gardening in Fellsmere. The interviews will take about 45 minutes to an hour. If you do choose to participate you will receive either seed packets or I will work for an hour for you in the communal garden. If you would like to participate, please fill in your contact information and I will contact you to set up a time. Thank you!
Name:

Phone Number:

Address:

Best time to reach you: [] mornings [] afternoons [] evenings

Mi nombre es Susan Tyler; soy una estudiante de la Universidad del Sur Florida. Yo llevaré a cabo entrevistas voluntarias como parte de un proyecto de investigación. Las entrevistas incluirán preguntas sobre los alimentos y jardinería en Fellsmere. Las entrevistas se llevarán 45 minutos a una hora. Si decide participar, usted recibirá paquetes de semillas o yo trabajare en su lugar en el jardín comunitario por una hora. Si desea participar, por favor introduzca su información de contacto y me pondré en contacto con usted para establecer una cita. ¡Gracias!
Nombre:

Número de teléfono:

Dirección:

Mejor Hora Para Llamarle [] Mañana [] Tardes [] Noches

Permission to Share Contact Information

Susan Tyler, a student at the University of South Florida, is conducting voluntary surveys and interviews as part of a research study on food and gardening in Fellsmere. If you are interested in participating, and with your permission, I will share your contact information with her. Thank you!

Name:

Telephone number:

Susan Tyler, una estudiante de la Universidad del Sur de Florida, llevará a cabo encuestas y entrevistas voluntarias como parte de un proyecto de investigación sobre los alimentos y jardineriá en Fellsmere. Si desea participar, y con su permiso, compartiré su información de contacto con ella. ¡Muchas Gracias!

Nombre:

Número de teléfono:

IRB study # 00012901

Version 1
September 20, 2013

The Research Study

Susan Tyler, a student at the University of South Florida, is conducting research on food access and gardening in Fellsmere. She is interested in hearing your views on this topic and will discuss food options and gardening with you. She has asked you to participate in an individual interview that will last approximately 45-60 minutes and takes place at a location of your choice. If you agree, the interview will be audio recorded for accuracy, but that is optional. Adults over 18 are eligible and your responses and contact information will be kept confidential.

Benefits of the Research Study

Although you will not directly benefit, you will be contributing to a better understanding of food access and gardening in Fellsmere.

Confidentiality

Susan Tyler, her advisor, Dr. David Himmelgreen, and other team members will have access to documents and information from this study. All information you share with us will be kept completely confidential and in a locked location. You will never be referred to by your real name in any documents or reports containing information collected during interviews. We may share some of the information we learn from you with the Farmworker Association of Florida. However, we will never share anything that will let anyone know who you are. We would like to audio record the interview only if you agree that we can do so. This will help us to accurately document your views, but it is up to you. To ensure your rights are protected, records can be reviewed by USF and the Dept. of Health and Human Services.

Voluntary

There are no known risks associated with participation in this study. Your decision to participate is completely voluntary, and may withdraw from the study at any time.

Compensation

You will also be compensated for your time. You will receive either seed packets or I (Susan Tyler) will work in the garden for an hour in your place. You may choose which form of compensation you prefer.

Further Questions

Thank you, we really appreciate your help with this study! Please read this form and sign below to participate. If you have any questions or concerns, please contact Susan Tyler at 813-966-7455 or styler1@health.usf.edu or Dr. David Himmelgreen at 813-974-2138 or dhimmelg@usf.edu. This research is being conducted as part of Susan Tyler's thesis project. If you have any questions about your rights as a participant in this study, call the Division of Research Integrity and Compliance of the University of South Florida (813) 974-5638. Thank you!

Agreement

[ ] I understand what the person conducting this study is asking me to do.

[ ] I have thought about this and agree to take part in this study. If you sign below, it means you agree to participate in the study "Food Security and Access in Fellsmere, Fl.".

[ ] I agree to have my interview audio recorded for accuracy. [optional]

Printed name of person agreeing to take part in the study: _____

Signature of person agreeing to take part in the study: _____Date: _____

Researcher's Statement

[ ]I have carefully explained to the person taking part in the study what he or she can expect and he or she understands what the study is about, as well as known risks and potential benefits.

Printed Name of Person Obtaining Informed Consent: _____

Signature of Person Obtaining Informed Consent: _____ Date: _____

Appendix B: Food Access and Security Survey

General Information

1. What is your gender? [] Male [] Female
2. What is your age?
3. Does a farmworker live in your household? [] Yes [] No
4. Including yourself, how many people currently live in your household? [] 1 [] 2-3 [] 4-5 [] 6-7 [] 8 or more
5. How many members of your household are under the age of 18? [] 0 [] 1 [] 2 [] 3 [] 4 or more
6. What is your race/ethnicity?

[] White [] Black/African-American [] Mexican, Mexican American, or Chicano [] Other Hispanic or Latino [] Haitian [] Other: please specify

7. What is your place of birth?
8. If you were born in another country, how long have you lived in the United States?
9. What is your highest level of education?

[] No formal schooling [] Some schooling, no high school degree [] High school graduate/GED [] Trade school [] Some college, no degree [] Associate's or bachelor's degree [] Graduate or professional degree

10. What is your marital status? [] Single [] Married [] Single living with partner
11. What is your annual household income?

[] Less than $10,000 [] $10,000 – $14,999 [] $15,000 – $24,999 [] $25,000 – $34,999 [] $35,000 – $49,999 [] $50,000 - $74,999 [] $75,000 or more

12. Language(s) spoken? [] English [] Spanish [] Other: please specify
13. Do you vegetable garden at your home? [] Yes [] No
14. Do you participate in any of the Farmworker Association of Florida gardening activities? [] Yes [] No
15. If yes to questions 13 or 14, on average how many hours a week do you spend gardening?
16. If yes to 13 or 14, how many months or years have you been gardening?
17. Are you responsible for purchasing/acquiring and preparing food in your household? [] Yes [] No

Food Access and Availability

18. Where do you typically purchase/acquire produce? [] Supermarket/grocery store [] Ethnic market/ethnic food store [] Produce stand/roadside market [] Farmer's markets [] Garden [] Food assistance program (food bank, pantry, or other donations) [] Other: please specify

19. Approximately how far do you live from where you purchase/acquire produce?
[] One to five blocks (less than a half-mile) [] ½ mile to 1 mile [] 1 mile to 3 miles [] 3 miles to 5 miles [] 5 miles to 10 miles [] More than 10 miles
20. What would make it easier for you to consume more fresh fruits and vegetables? Check all that apply.
[] More affordable prices [] Closer access to supermarket/grocery store [] More or better selection at supermarket/grocery store (for example: more ethnic variety) [] More street vendors/mobile vendors/produce stands/farmer's markets in my area [] More bus stops near places that sell produce [] Access to a community garden or personal garden in my neighborhood [] More food assistance programs (food bank, pantry, or other donations) [] More time available to cook and prepare produce
[] Knowing how to prepare foods and more knowledge about nutrition & health benefits [] Having someone to cook for/eat with [] Other: please specify
21. How do you typically travel to obtain your produce? [] Car [] Walk [] Bike [] Public transportation/bus [] They are delivered to me [] I grow my own fruits and vegetables [] Other: please specify
Food Choices and Barriers
22. Which best describes the food eaten in your household in the last 12 months? [] Always enough to eat [] Sometimes not enough to eat [] Often not enough to eat
23. Do you have to compromise on purchasing fresh fruits and vegetables because of cost? [] Always [] Sometimes [] Never
24. How many servings of fruits and vegetables do you personally eat on a daily basis? [] None [] 1 – 2 [] 3 – 4 [] 5 or more
25. How many times each week do you and/or your family members eat fast food or take-out meals? [] 0 [] 1 – 2 [] 3 – 4 [] 5 or more
26. In deciding which foods to purchase, which three factors are the most important to you?
[] Freshness/Quality [] Health/Nutrition [] Prices [] Convenience/ease of preparation [] Taste/Familiarity [] Other: please specify
27. What type of produce do you most often buy/obtain? [] Fresh [] Frozen [] Canned
28. Which of the following, if any, make it difficult for you to purchase/obtain fresh produce?
[] Distance to store [] Lack of transportation available [] Affordability/cost [] Physical disabilities [] No time available [] Other: please specify
29. Are culturally appropriate fresh foods that your family desires available in your neighborhood? [] Yes, I am able to access all of the foods I desire for my family [] Sometimes, but not always [] Culturally appropriate foods are not available for my family
30. Does your household participate in any food assistance programs, such as SNAP or WIC? [] Yes [] No
Household Food Security
These next questions are about the food eaten in your household in the last 12 months, since
June/July of last year and whether you were able to afford the food you need.
31. The food that you bought just didn't last, and you didn't have money to get more. Was that often, sometimes, or never true for you or your household in the last 12 months? [] Often true [] Sometimes true [] Never true [] Do not know
32. You couldn't afford to eat balanced meals. Was that often, sometimes, or never true for you or your household in the last 12

months? [] Often true [] Sometimes true [] Never true [] Do not know
33. In the last 12 months, since last June/July did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? [] Yes [] No (Skip to question 35) [] Do not know (Skip to question 35)
34. IF YES ABOVE, How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months? [] Almost every month [] Some months but not every month [] Only 1 or 2 months [] Do not know
35. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food? [] Yes [] No [] Do not know
36. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food? [] Yes [] No [] Do not know

Appendix C: USDA Thrifty Food Plan Food Store Survey

USDA Community Food Security Assessment Toolkit

Food Store Survey Instrument

June 2002

Store Name: _____

Store Address: _____
(Street)

_____
(City/Neighborhood) **(ZIP Code)**

Store ID#: _____ **Store Phone#:** _____

Store Type: ____Supermarket ___Convenience ___Other
____ Large grocery ___Gas/grocery
____ Small grocery ___Ethnic/specialty

READ THE FOLLOWING TO THE STORE MANAGER BEFORE CONDUCTING THE STORE SURVEY:

Thank you for allowing me to spend some time in your store collecting information on the availability of selected food items and their prices. The information that we are collecting from a wide variety of stores in the area will help create a profile of food availability and costs in the community. The information will be only used for this purpose and data collected from all stores will be combined. No data will be linked to any specific store.

TO THE DATA COLLECTOR:

Please complete the following table by walking through the store and recording the price and weight of the least expensive item for each food listed. The table includes the unit of measure that should be selected for each food. For example, potatoes are measured in pounds, eggs are measured by the dozen. It is important that the prices recorded are for the specific food item in the table with no substitutions. If a food item is unavailable on the day that you visit the store but is usually in stock, check with the manager for the normal price. If a food is never in stock, mark the pricing box with an NA (for Not Available). If a food is on sale, place an "S" next to the price.

Food Item	Brand/ Variety	Item Weight/ Unit (Desired)	Item Weight/ Unit (Actual)	Price (Lowest Cost)
Fruit—fresh				
Apples, any variety (bagged or loose)		Per lb		
Bananas		Per lb		
Grapes (green or red)		Per lb		
Melon (cantaloupe, honeydew, or watermelon)		Per lb		
Oranges, any variety (bagged or loose)		Per lb		
Vegetables—fresh				
Carrots, unpeeled (bagged or loose)		1-lb bag		
Celery, bunch		Per lb		
Green pepper		Per lb		
Lettuce, leaf (green or red)		Per lb		
Onions, yellow (bagged or loose)		Per lb		
Tomatoes (any variety)		Per lb		
Potatoes, any variety		5-lb bag		
Fruit, canned				
Oranges, mandarin (juice or light syrup)		15-oz can		
Peaches, any variety (light syrup)		29-oz can		
Vegetables, canned				
Mushrooms, pieces		4-oz can		
Spaghetti sauce, any variety		26-oz jar		
Tomato sauce, any variety		8-oz can		
Fruits and Vegetables, frozen				
Orange juice, concentrate		12-oz can		
Broccoli, chopped		16-oz bag		
Green beans—any variety		16-oz bag		
Green peas—any variety		16-oz bag		
French fries—any variety		32-oz bag		

Food Item	Brand/ Variety	Item Weight/Unit (Desired)	Item Weight/ Unit (Actual)	Price (Lowest Cost)
Breads, Cereals, and Other Grain Products, fresh				
Bread, white, enriched		1-lb loaf		
Bread, whole wheat		24-oz loaf		
Hamburger buns, enriched		Package of 8		
Rolls, dinner, enriched		Package of 12		
French or Italian Bread, enriched		Per 1-lb loaf		
Bagels, plain, enriched		Package of 6		
Bread crumbs, plain		10-oz can		
Breads, Cereals, and Other Grain Products, dry				
Ready-to-eat cereal—corn flakes		18-oz box		
Ready-to-eat cereal—toasted oats		20-oz box		
Flour, white, all-purpose, enriched		5-lb bag		
Macaroni, elbow-style, enriched		1-lb box		
Noodles, yolk-free, enriched		1-lb bag		
Popcorn, microwave, any variety (unpopped)		9 oz package		
Rice, white, long-grain, enriched		5-lb bag		
Spaghetti, any variety, enriched		1-lb box		
Dairy Products, fresh				
Milk, 1% lowfat		1 gal		
Milk, whole		1 gal		
Cheese, cheddar, any variety		Per lb		
Cheese, cottage, any variety		16-oz carton		
Cheese, mozzarella, whole		16-oz package		
Dairy Products, canned				
Evaporated milk, any variety		12-oz can		

Food Item	Brand/ Variety	Item Weight/ Unit (Desired)	Item Weight/ Unit (Actual)	Price (Lowest Cost)
Meat and Meat Alternates, fresh				
Beef, ground, lean		Per lb		
Chicken, fryer, cut-up or whole		Per lb		
Chicken, thighs		Per lb		
Turkey, ground		Per lb		
Pork, ground		Per lb		
Turkey ham (packaged luncheon meat)		Per lb		
Eggs, grade A, large		1 doz		
Meat and Meat Alternates, frozen and canned				
Fish, flounder or cod, frozen		Per lb		
Tuna fish, chunk-style, water packed		6-oz can		
Beans, garbanzo (chick peas), canned		15-oz can		
Beans, kidney, canned		15.5-oz can		
Beans, baked, vegetarian		16-oz can		
Fats and Oils				
Margarine, stick		1-lb box		
Shortening, vegetable		3-lb can		
Salad dressing, mayonnaise-type		32-oz jar		
Vegetable oil, any type		48-oz bottle		
Sugars and Sweets				
Sugar, brown (dark or light)		1-lb bag or box		
Sugar, powdered		1-lb bag		
Sugar, white, granulated		5-lb bag		
Jelly, grape		32-oz jar		
Molasses, any type		12-oz jar		
Pancake syrup, any type		24-oz bottle		
Chocolate chips, semi-sweet		12-oz package		
Fruit drink, refrigerated, any flavor		1 gal		
Fudgesicles, ice milk		Box of 12		

Food Item	Brand/ Variety	Item Weight/ Unit (Desired)	Item Weight/ Unit (Actual)	Price (Lowest Cost)
Other Food Items, optional				
Baking powder		10-oz can		
Baking soda		16-oz box		
Chile powder		3.25-oz jar		
Cinnamon		3-oz jar		
Cumin		2-oz jar		
Onion powder		3.5-oz jar		
Garlic powder		4.25-oz jar		
Italian herb seasoning		2-oz jar		
Oregano		0.56-oz jar		
Paprika		2.9-oz jar		
Black pepper, ground		4-oz jar		
Salt, any type		26-oz carton		
Vanilla, any type		6-oz jar		
Chicken bouillon, reduced-sodium, cubes		3.75-oz jar		
Catsup, any type		28-oz bottle		
Soy sauce, reduced-sodium		10-oz bottle		
Lemon juice, bottled		32-oz bottle		
Gelatin, powdered, unflavored		Box of 4 envelopes		
Chocolate drink mix, powdered		32-oz can		

Appendix D: Chi-Square And Fisher's Exact Tests Tables

Table D.1. Farmworker Status and Ethnic Food Places

		Ethnic Food Places		Total
		Yes	No	
Farmworker	Count	6	7	13
	% Farmworker	46.2%	53.8%	100.0%
Non Farmworker	Count	1	13	14
	% Farmworker	7.1%	92.9%	100.0%
Total	Count	7	20	27
	% Farmworker	25.9%	74.1%	100.0%

Table D.2. Farmworker Status and Ethnic Food Places Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.342[a]	1	.021		
Continuity Correction[b]	3.503	1	.061		
Likelihood Ratio	5.753	1	.016		
Fisher's Exact Test				.033	.029
N of Valid Cases	27				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.37.
b. Computed only for a 2x2 table

Table D.3. Farmworker Status and Gardener Status

		Gardener Status		Total
		Gardener	Non Gardener	
Farmworker	Count	10	3	13
	% Farmworker	76.9%	23.1%	100.0%
Non Farmworker	Count	6	8	14
	% Farmworker	42.9%	57.1%	100.0%
Total	Count	16	11	27
	% Farmworker	59.3%	40.7%	100.0%

Table D.4. Farmworker Status and Gardener Status Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.240[a]	1	.072		
Continuity Correction[b]	1.983	1	.159		
Likelihood Ratio	3.332	1	.068		
Fisher's Exact Test				.120	.079
N of Valid Cases	27				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.30.
b. Computed only for a 2x2 table

Table D.5. Gardener Status and Cutting or Skipping Meals

		Cutting and Skipping Meals		Total
		Yes	No	
Gardener	Count	2	12	14
	% Gardener	14.3%	85.7%	100.0%
Non Gardener	Count	6	5	11
	% Gardener	54.5%	45.5%	100.0%
Total	Count	8	17	25
	% Gardener	32.0%	68.0%	100.0%

Table D.6. Gardener Status and Cutting or Skipping Meals Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.588[a]	1	.032		
Continuity Correction[b]	2.925	1	.087		
Likelihood Ratio	4.702	1	.030		
Fisher's Exact Test				.081	.043
N of Valid Cases	25				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.52.
b. Computed only for a 2x2 table

Table D.7. Poverty Status and Use of Produce and Roadside Stands

		Use of Produce and Roadside Stands		Total
		Yes	No	
Below Poverty	Count	0	12	12
	% Poverty	0.0%	100.0%	100.0%
Above Poverty	Count	6	8	14
	% Poverty	42.9%	57.1%	100.0%
Total	Count	6	20	26
	% Poverty	23.1%	76.9%	100.0%

Table D.8. Poverty Status and Use of Produce and Roadside Stands Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.686[a]	1	.010		
Continuity Correction[b]	4.489	1	.034		
Likelihood Ratio	8.969	1	.003		
Fisher's Exact Test				.017	.013
N of Valid Cases	26				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.77.
b. Computed only for a 2x2 table

Table D.9. Poverty Status and Closer Access to a Supermarket or Grocery Store

		Closer Access to a Supermarket or Grocery Store		Total
		Yes	No	
Below Poverty	Count	6	6	12
	% Poverty	50.0%	50.0%	100.0%
Above Poverty	Count	0	14	14
	% Poverty	0.0%	100.0%	100.0%
Total	Count	6	20	26
	% Poverty	23.1%	76.9%	100.0%

Table D.10. Poverty Status and Closer Access to a Supermarket or Grocery Store Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.100[a]	1	.003		
Continuity Correction[b]	6.501	1	.011		
Likelihood Ratio	11.455	1	.001		
Fisher's Exact Test				.004	.004
N of Valid Cases	26				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.77.
b. Computed only for a 2x2 table

Table D.11. Poverty Status and Food Preparation and Knowledge

		Food Preparation and Knowledge		Total
		Yes	No	
Below Poverty	Count	1	11	12
	% Poverty	8.3%	91.7%	100.0%
Above Poverty	Count	7	7	14
	% Poverty	50.0%	50.0%	100.0%
Total	Count	8	18	26
	% Poverty	30.8%	69.2%	100.0%

Table D.12. Poverty Status and Food Preparation and Knowledge Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.266[a]	1	.022		
Continuity Correction[b]	3.492	1	.062		
Likelihood Ratio	5.804	1	.016		
Fisher's Exact Test				.036	.028
N of Valid Cases	26				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.69.
b. Computed only for a 2x2 table

Table D.13. Poverty Status and Cutting and/or Skipping Meals

		Cutting and/or Skipping Meals		Total
		Yes	No	
Below Poverty	Count	6	6	12
	% Poverty	50.0%	50.0%	100.0%
Above Poverty	Count	2	12	14
	% Poverty	14.3%	85.7%	100.0%
Total	Count	8	18	26
	% Poverty	30.8%	69.2%	100.0%

Table D.14. Poverty Status and Cutting and/or Skipping Meals Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.869[a]	1	.049		
Continuity Correction[b]	2.374	1	.123		
Likelihood Ratio	3.978	1	.046		
Fisher's Exact Test				.090	.061
N of Valid Cases	26				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.69.
b. Computed only for a 2x2 table

Table D.15. Poverty Status and Food Security Status

		Food Security Status		Total
		Food Secure	Food Insecure	
Below Poverty	Count	3	9	12
	% Poverty	25.0%	75.0%	100.0%
Above Poverty	Count	11	4	15
	% Poverty	73.3%	26.7%	100.0%
	Count	14	13	27
	% Poverty	51.9%	48.1%	100.0%

Table D.16. Poverty Status and Food Security Status Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.238[a]	1	.013		
Continuity Correction[b]	4.452	1	.035		
Likelihood Ratio	6.499	1	.011		
Fisher's Exact Test				.021	.017
N of Valid Cases	27				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.78.
b. Computed only for a 2x2 table

Table D.17. Food Security Status and More Street Vendors, Mobile Vendors, Produce Stands, and Markets

		More Street, Mobile Food Places		Total
		Yes	No	
Food Secure	Count	11	3	14
	% Food Security Status	78.6%	21.4%	100.0%
Food Insecure	Count	2	11	13
	% Food Security Status	15.4%	84.6%	100.0%
Total	Count	13	14	27
	% Food Security Status	48.1%	51.9%	100.0%

Table D.18. Food Security Status and More Street Vendors, Mobile Vendors, Produce Stands, and Markets Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.780[a]	1	.001		
Continuity Correction[b]	8.398	1	.004		
Likelihood Ratio	11.682	1	.001		
Fisher's Exact Test				.002	.001
N of Valid Cases	27				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.26.
b. Computed only for a 2x2 table

Table D.19. Food Security Status and Freshness/quality

			Freshness/quality		Total
			Yes	No	
	Food Secure	Count	13	2	15
		% Food Security Status	86.7%	13.3%	100.0%
	Food Insecu re	Count	7	6	13
		% Food Security Status	53.8%	46.2%	100.0%
		% of Total	25.0%	21.4%	46.4%
Total		Count	20	8	28
		% Food Security Status	71.4%	28.6%	100.0%

Table D.20. Food Security Status and Freshness/quality Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.676[a]	1	.055		
Continuity Correction[b]	2.244	1	.134		
Likelihood Ratio	3.778	1	.052		
Fisher's Exact Test				.096	.067
N of Valid Cases	28				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.71.
b. Computed only for a 2x2 table

Table D.21. Poverty Status and Hunger due to Lack of Money

			Hunger due to Lack of Money		Total
			Yes	No	
Total	Below Poverty	Count	4	7	11
		% Poverty	36.4%	63.6%	100.0%
	Above Poverty	Count	0	14	14
		% Poverty	0.0%	100.0%	100.0%
		Count	4	21	25
		% Poverty	16.0%	84.0%	100.0%

Table D.22. Poverty Status and Hunger due to Lack of Money Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.061[a]	1	.014		
Continuity Correction[b]	3.657	1	.056		
Likelihood Ratio	7.563	1	.006		
Fisher's Exact Test				.026	.026
N of Valid Cases	25				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.76.
b. Computed only for a 2x2 table