

Case Study on a Container Gardening Program: Can Home Food Production Impact Community
Food Security in Rural Appalachia?

Elizabeth R. Dobson

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Susan F. Clark, Chair
Anita M. Puckett
Megan E. O'Rourke

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ABSTRACT

Home gardening has historically been a subsistence or supplemental form of food procurement worldwide and promoted as a food security project in times of economic hardship. Qualitative research was used to investigate container gardening's potential to provide the impetus for further agricultural activities within low-income, low-food-access, rural Appalachian Virginia, thereby impacting community food security, food choices of individuals, and the local food system. Ethnography and phenomenology methodologies were used through the lens of community-engaged research, and the lived experiences of participants were recognized as valid representations of food insecurity. Semi-structured interviews with fourteen participating households revealed program involvement was deeply connected to previous food production experiences and fueled by existing interest in home gardening. Containers were valued as providing alternative modes to continue a meaningful practice, specifically mitigating challenges of limited mobility for the elderly. As rural areas are experiencing an outmigration of young people and struggling social services, container gardening could be utilized as a low-cost culturally appropriate mental- and nutritional-health service for the rural elderly. Similar initiatives should begin with appreciative inquiry into existing perceptions, values, assets, and potentials within a target community. Through preliminary investigation, needs and barriers can be acknowledged and community-identified solutions can be implemented through culturally sensitive program development. With the existing impetus for home gardening in the region, program expansion could potentially impact food security and the local food system. Overall,

this case study serves to further endorse a public effort to support home food production in rural areas of the United States.

Dedication

This research is dedicated to the subsistence farmers of rural Appalachia including Homer Lee and Grace Lee Harris, the grandparents I never had the pleasure of meeting.

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My deepest thanks goes to Dr. Susan Clark, who not only acted as an incredible and dedicated academic advisor but also as a professional mentor and personal life coach over the past two years. Susan has continuously offered me opportunities to grow and encouraged me to push myself academically and professionally, while always allowing me to maintain my individuality. By accepting me as a student in the Department of Horticulture and as a teaching assistant for the Civic Agriculture and Food Systems program, Susan granted me what I believe to be one of the best graduate opportunities offered at Virginia Tech. Appreciations also go out to my committee members, Dr. Anita Puckett and Dr. Megan O'Rourke, who helped keep me honest and on-track to graduate with an appropriately sized research project.

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Abbreviations

AFP	Appalachian Foodshed Project
ASD	Appalachian Sustainable Development
CEnR	Community-Engaged Research
CFS	Community Food Security
EBP	EarthBox® Program
GA	Grow Appalachia
FA SWVA	Feeding America Southwest Virginia
FSP	Food Stamp Program
HFP	Home Food Production
IFM	Independence Farmers' Market
MFP	Mobile Food Pantry
SFMNP	Senior Farmers Market Nutrition Program
SNAP	Supplemental Nutrition Assistance Program
USDA	United States Department of Agriculture
USDA AMS	USDA Agricultural Marketing Service
USDA ERS	USDA Economic Research Service
VSC	Volunteer Site Coordinator
WIC	Special Supplemental Food Program for Women, Infants, and Children

CHAPTER 1: INTRODUCTION

Background

Home Gardening and Food Access

Home gardening has historically been a subsistence or supplemental form of food procurement worldwide, yet the presence of home gardens in the United States has waned since the nineteenth century (Galhena, Freed, & Maredia, 2013; Sharp & Castellano, 2013).

Industrialization and consolidation of the food system, migrations of populations into urban areas, and an increase in the availability of mass-produced commodity foods help to explain a decrease in United States home gardening efforts (Lyson, 2004; Sharp & Castellano, 2013).

While the practice is in steady decline, gardening has experienced periods of resurgence in the United States to specifically address food security concerns during economic hardship and food supply disruptions (Niñez, 1987).

Inspired by these recurrences, Allen (1999) specifically indicated gardening as a potentially more sustainable community food security project than the current United States food security safety net of government- and privately-organized emergency food programs. The author described how this safety net, inclusive of programs and organizations such as the Supplemental Nutrition Assistance Program (SNAP) or Feeding America Southwest Virginia (FA SWVA), is vulnerable to fluctuations in funding, political agendas, and volunteer interest. Community food programs in low income and low food access areas that could “create opportunities for low income people to define and create food security for themselves” (Allen, 1999, p. 123) were advocated for. Further, researchers Gray, Guzman, Glowa, and Drevno

(2014) showed home gardening projects have the ability to increase access to fresh produce and simultaneously empower individuals to begin taking ownership of food security efforts in their neighborhoods.

Home gardens, opposed to community or school gardens, may be viewed as private, self-serving endeavors, which may help explain why they “have been overlooked, understudied, and unsupported by government agencies, non-governmental organizations, and academics” (Taylor & Lovell, 2014, abstract). However, for some, such as those in rural areas with low income and limited transportation, home garden initiatives may have the long-term potential to be an inexpensive social service to reduce reliance on food security assistance programs, increase vegetable and fruit intake, and provide opportunities for physical activity (Morton, Bitto, Oakland, & Sand, 2008; Quandt, Popyach, & DeWalt, 1994).

Home gardening, although somewhat physically and socially isolating, can be considered a public good, especially in rural areas. It has been found that low-income rural households are more likely to exchange garden produce with friends, family and neighbors when compared to a low-income urban group (Morton et al., 2008). As a result, access to a personal, family member’s, or friend’s garden was discovered to significantly increase fruit and vegetable consumption (Morton et al., 2008). Researchers also found garden produce to be the most common type of food shared in rural North Carolina among adults aged 70+ years compared to foraged foods, baked goods, cooked foods, groceries, and pre-made meals (Quandt, Arcury, Bell, McDonald, & Vitolins, 2001a). The community practice of food exchange, specifically sharing garden produce, which is notably unpredictable and not necessarily distributed based on need, should be considered when studying the nutritional and social impacts of home gardening on rural communities.

Grayson County Food Access

Present-day Grayson County is a largely rural county in south central Appalachia (ARC, 2009). Grayson had an estimated population density of 35.1 people per square mile in 2010, a median household income of \$30,710 in 2009-2013, and a population with 19.1% of persons living below federal poverty guidelines (an income of \$11,770 for a one person with \$4,160 added for each additional person in the household) in 2009-2013 (US Census Bureau, n.d.b; US DHHS, 2015). For comparison, Washington D.C. had a population density of 9,856.5 people per square mile in 2010, and the state of Virginia had a median household income of \$63,907 and 11.3% of persons living below federal poverty guidelines in 2009-2013 (US Census Bureau, n.d.a; US Census Bureau, n.d.c).

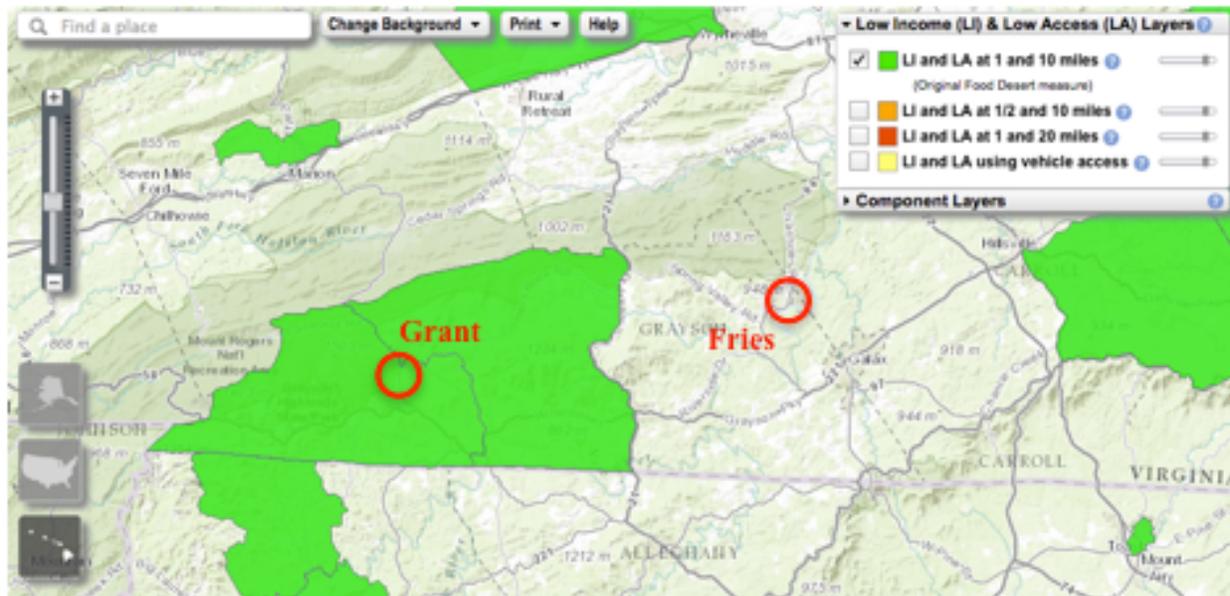
Documented food insecurity increased in Grayson County from 7.3% of households experiencing food insecurity in 2000-2002 to 9.2% in 2007-2012 (US Department of Agriculture (USDA) Economic Research Service (ERS), 2015b). Feeding America (2014) proposed an even greater percentage of individuals had experienced food insecurity in 2012, with almost 2,000 individuals out of a population of just over 15,500 (almost 13%) recognized in the county. This discrepancy may be due to the inclusion of children or extended family members residing in food insecure households. For more insight into the status of food security, 2,645 individuals and 1,257 households in Grayson County were enrolled in SNAP in March of 2016 (VA DSS, 2016).

Dean and Sharkey (2011) emphasize that understanding the household food environment, including food access and economic status, of rural and low-income peoples is key to understanding food choices. According to the USDA Economic Research Service (ERS) (2015b) Food Environment Atlas for Grayson County, the number of grocery stores decreased from four in 2007 to one in 2012 and the number of convenience stores remained at seven from

2007 to 2012. For reference, the food atlas indicated that the number of stores in 2012 translated to 0.07 grocery stores and 0.46 convenience stores per 1,000 population (USDA ERS, 2015b). In considering the economic status of households, it is also important to note that as 10.25 stores accepted SNAP benefits, only one store accepted Special Supplemental Food Program for Women, Infants, and Children (WIC) benefits in 2012 (USDA ERS, 2015b), presumably the single grocery store in Independence. Assuming the 1 grocery store and 7 convenience stores are included in the 10.25 stores accepting SNAP, it is unclear where the 2.25 other stores are in the county.

While the USDA ERS (2015a) Food Access Research Atlas categorizes all of Grayson County to be low-income (poverty rate at or above 20 percent *or* a median family income at or below 80 percent of the area median family income), the eastern and western portions of Grayson County maintain very different geographic accessibilities of food to residents. As seen in *Figure 1*, the Food Access Research Atlas clearly divides the county north to south by US-21 and shows the western region to have low food access, a region with a significant number (at least 500 persons and/or at least 33% of the census tract's population) of residents living more than 10 miles from the nearest supermarket (Agricultural Marketing Service, n.d.). The western region has a significant number of people residing 10-20 miles from the nearest supermarket, but the eastern region of the county lacks low food access indicators (USDA ERS, 2015a, *Figure 1*). The characteristics of low income with low food access in western Grayson County parallel the original USDA definition of a “food desert,” a phrase no longer used by the USDA. In response to Grayson’s low-income status coupled with low and limited food access, volunteers with FA SWVA established two monthly mobile food pantries (MFP) in 2012, one in the eastern region (Fries, Virginia) and one in the western region (Grant, Virginia) (*Figure 1*).

Figure 1. The Low Income and Low Food-Access Region with Mobile Food Pantry Locations (Red Circles) in Grayson County (USDA ERS, 2015a)



West Grayson Mobile Food Pantry and The EarthBox® Program

The west Grayson MFP distribution center, started in March 2012 and located at Grayson Highlands School in Grant, VA, has a team of 30-50 volunteers that facilitate monthly food distributions. When asked about food access in the region, the volunteer site coordinator (VSC) for the west Grayson MFP responded, “if you want food, you drive 30 minutes” (M. Stamper, personal communication, March 26, 2015). *Figure 2* reveals how western Grayson residents often travel out of the county to Marion, Virginia, or West Jefferson, North Carolina, to accomplish their grocery shopping (M. Stamper, personal communication, April 20, 2015). For comparison, grocery store options available to eastern Grayson residents are geographically closer, even including the Food City in Independence (K. Cole, personal communication, April 19, 2015) (*Figure 2*). The VSC recognized that, in addition to having limited geographic

accessibility to food, residents' disposable income and food security were very dependent upon access to efficient and reliable transportation. For this reason, the 200-250 families who used the monthly MFP in Grant are not required to present proof of income or residency, allowing participants to decide for themselves whether they need monthly food assistance, i.e. define their own food security (Allen, 1999).

Figure 2. Grocery Stores Used by Grayson County Residents



After the first year of the MFP, the VSC found the monthly distributions to have a positive effect on the food security of many local residents. With a desire to support households

to feed themselves beyond using MFP services, the VSC began working to empower clients to create food security for themselves through encouraging home food production (HFP). The VSC's idea was initially put into action by gifting tomato starts purchased with grant funds to a small number of households in 2013. Through informal conversation at the MFP, the initiative received tremendously positive feedback from clients regarding the productivity of the plants.

Acknowledging the fertility of Grayson County's land and wanting to expand upon this first successful project, the VSC and an AmeriCorps Volunteer surveyed MFP clients to discern the potential of families supplementing their food budgets through home gardening or farming. Interestingly, the survey revealed that 65% of MFP participants were elderly and physically unable to garden or farm. Further, most of the participants indicated that they did not own their land and subsequently were not permitted by property owners to garden or farm. Another noteworthy finding was some who owned their land lacked the proper tools and equipment they considered necessary to prepare farmland or garden space (Grayson LandCare, Inc., Appalachian Foodshed Project (AFP) Community Food Security (CFS) Enhancement Grant Proposal, 2014; M. Stamper, personal communication, March 26, 2015). Many of these barriers to home food production parallel those found in recent and similar studies (Kortright & Wakefield, 2011; Schupp & Sharp, 2012).

Based on the survey information, the VSC proposed container gardening as a solution to mitigate the reported challenges. In 2014, the west Grayson MFP partnered with local non-profit Grayson Landcare, Inc. and the Independence Farmer's Market (IFM), the only farmer's market in Grayson County, and strategically offered free EarthBox® container gardens (Novelty Manufacturing Company, 2016), seeds, and growing instructions to 50 MFP clients. Grayson Landcare, Inc. and the IFM have long collaborated to increase diversity of customers at the

market as well as build civic engagement in the local food system. Therefore, an additional component of the container gardening program was to offer participants free transportation to the IFM, which has a SNAP benefits-doubling program. The goals of the 2014 project were “to empower food-insecure families to grow some of their own food and to increase their intake of nutritious, fresh, and locally-grown fruits and vegetables; and to understand the health benefit and significance of a diet that includes fresh local produce” (Grayson LandCare, Inc., AFP CFS Enhancement Grant Proposal, 2014).

Objectives for the first year included each family receiving one EarthBox® garden to raise ten pounds of food per box and one member of each household visiting the IFM once with or without free transportation during the 2014 season. Grayson LandCare, Inc. applied for a community food security enhancement projects grant through the Appalachian Foodshed Project (AFP). This community food security enhancement project, funded through November 2015, was fiscally managed by Grayson LandCare, Inc. as part of a 2011 USDA National Institute of Food and Agriculture-Agriculture and Food Research Initiative Grant (Award No. 2011-68004-30079).

In the spring of 2014, the VSC and AmeriCorps Volunteer developed an application for MFP participants to receive an EarthBox® system. Applications specified receiving SNAP and/or social security benefits, having children in the home, and/or living in western Grayson County as priority selection criteria. Fifty-seven applications were received in May of 2014, and the 50 applicants selected to receive the container gardening system had at least one of the preferred criteria (M. Stamper, personal communication, March 26, 2015). After EarthBox®s and soil were purchased, youth and volunteers assembled the 50 gardens at Grayson Highlands School. Participants were given green bean seeds with instructions to grow in their EarthBox®s.

This vegetable crop was chosen because it is easily cultivated with minimal pest and disease issues. Additionally, green beans were familiar to the local food culture, which is why the project, known to MFP participants as the EarthBox® Program (EBP), was informally titled the Grayson Green Bean Project by the organizers.

Through brief, informal conversations at the monthly MFP, the VSC gathered very positive responses from EBP participants. Stories ranged from excited families gathering multiple bean pickings throughout the growing season to inspired family members expanding the garden by acquiring more containers. A November 2014 progress report from Grayson LandCare, Inc. to the AFP stated that “the vast majority of families had great success” in their first EarthBox® growing season. An additional grant project objective was to utilize the lessons learned in this first growing season in the 2015 planning process. In collaboration with a representative of Grayson LandCare, Inc. and the VSC of the West Grayson MFP, a participant survey, later titled the “Preliminary 2014 Survey,” was developed to collect more formal data regarding the participants’ experience in their first growing season with the EarthBox®s and their experience with the IFM. The results were used to inform the 2015 EBP planning process and this research project.

An AmeriCorps volunteer collected Preliminary 2014 Survey results from 39 of the 50 households (78% response rate), via phone interviews during the fall of 2014, though data from only 36 are accessible (72% response rate). When asked about the gardening experience, 27 (75%) expressed it was a positive experience (“good”, “very good”, “wonderful”, “loved it”, etc.), 4 (11%) remarked their experience was “okay,” and 1 (<3%) indicated their experience was “not good.” All responders indicated that they would grow in the 2015 season. When probing about the IFM, the volunteer recorded that 10 (28%) participants had attended the IFM during

the 2014 growing season. Of these participants, 5 (14%) made purchases with or without SNAP benefits, and 7 (19%) returned at least a second time. While most participants did successfully grow food in their gardens and a number did attend the IFM, no one indicated a change in diet as a result of participating in the project.

In addition to supporting households to replant their existing Earthboxes in 2015, Grayson LandCare, Inc. used remaining and newly allocated grant funding from the AFP to purchase Wood Prairie Farm Smart Bags, food-grade buckets, and seed potatoes. Shallow pans, soil, fertilizer, and amendments were also procured for interested participants so they could expand their garden's growing capacity for the 2015 growing season. Early May of 2015, the Western Grayson MFP VSC organized an event for EBP participants to pick up supplies and transplants donated from the Virginia Tech Kentland Farm Organic Garden. Container gardening instructions, materials, and demonstrations of how to construct gardens from reusable and accessible materials, such as the food-grade buckets and shallow pans were also offered at the event. Of the original 50 participants who participated in the EBP in 2014, 28 (56%) obtained the second set of containers in 2015.

Problem Statement

When considering the household food environment of western Grayson MFP clients, recognizing the challenges of having low income, unreliable and costly transportation, and limited geographic accessibility to food stores can help understand the health and food choices of this citizen group (Dean & Sharkey, 2011). With a desire to reduce household dependence upon MFP distributions, the VSC has proposed home gardening as a means to expand the food choices of those limited by their food environment. The EBP was developed to empower families to

grow some of their own food to supplement food budgets and increase individual consumption of fresh fruits and vegetables. While 75% of the 36 clients who responded to the Preliminary 2014 Survey expressed a positive experience with their first growing season and all indicated they would grow again in 2015, only 28% specified visiting the IFM in 2014 and none of the participants indicated a change in food choices or diet as a result of participating in the EBP.

Research Questions

In order to explore the current state of the program, the following questions were asked:

- 1) Why and how did households choose to participate in the EBP, and what goals did they want to accomplish in the project?
- 2) What did participants value about engaging in the EBP?
- 3) What, if any, new activities or thought patterns were inspired by participating in the EBP, and were the original participant goals met or altered?
- 4) What challenges did participants experience, and what do participants feel they need in order to accomplish their goals?
- 5) What solution to food access do participants propose, and does it involve the local food system?

Study Purpose and Objectives

This research further investigated whether the EBP, a low-cost residential gardening initiative, acted, as the collaborators theorized, as a springboard for further agricultural activities to impact community food security, food choices of individuals, and the local food system. The original objectives of this research included:

- 1) Identify similarities and differences between participant motivations/goals and the EBP collaborators' motivations/goals
- 2) Determine key findings about if, how, and why the participants value engagement in the EBP
- 3) Explore the experience of and impacts on participants, and recommend future actions to improve the EBP
- 4) Record what solutions to food access participants propose, and recommend future actions to improve local food accessibility in Grayson County

Conceptual Framework

In order to structure this research project and provide focus to the inquiry, elements of ethnography and phenomenology were used to design a conceptual framework for this in-depth case study. Compiling a local history of Grayson County and participating in MFP and EBP events during the 2015 growing season generated an ethnographic perspective of food access and agriculture in the region. This preliminary research was used to guide the design and ground the findings. With a desire “to understand several individuals’ common or shared experiences of a phenomenon... in order to develop practices or policies” (Creswell, 2013, p. 81), the entire study was heavily framed through a phenomenological lens using semi-structured interviewing techniques. The unit of analysis was the common experiences bound by participation in the EBP, and the multilayered descriptive approaches of ethnography and phenomenology contributed to the “real-life context” that defined this research as a case study (Rossman & Rallis, 2012). Two traditional qualitative research approaches (ethnography and

phenomenology) were blended into a multi-layered and systematic case study inquiry (Creswell, 2013; Rossman & Rallis, 2012).

The inquiry design used a community-engaged research (CEnR) approach where partnerships between researchers and community members are prioritized to ensure culturally acceptable research design (McDonald, 2008). By consulting with community representatives who are involved with the MFP and the EBP, input was used to identify locally relevant research objectives and questions. A purpose of this study was to provide feedback to the community and organizers on the EBP. Resulting information has therefore been disseminated appropriately to the local community in addition to academic venues.

With a portion of the research focused on discovering what participants valued about engagement in the EBP, the concept of indexical signs was pulled from semiotic theory in order to understand certain categories of emergent themes that emerged from the research. Semiotics is the study of signs and the meaning that is made of them (Ahern, 2012; Gumperz & Hymes, 1972; Mertz & Parmentier, 1985). This is useful in understanding the cultural meanings within qualitative research so that meaningful recommendations to address issues can be framed in a culturally sensitive way. Indexical signs “point to” something else through co-occurrence in a specific context. A traditional example of an indexical is how smoke can be an index of fire. Whether or not fire exists in the exact moment that smoke is perceived, fire is assumed when smoke appears because they have been previously and iteratively perceived as occurring in the same moment in time and space.

The concept of indexicals, or learned associations (Puckett, 2005), was pulled from semiotic theory to understand how and why the act of gardening in a container could index profound values, meanings, and emotions for participants. Using this theory revealed that these

seemingly dramatic responses were actually socially-embedded or culturally-influenced (Ahearn, 2012) by past agricultural experiences. In the analysis and discussion, food gardening, even if minimally in a container, was considered, for many participants, a link to a past agricultural narrative. This objective understanding of the subjective meaning system around food production was used to justify why participants values related to gardening, and the consequential emotional responses, were included in the final program evaluation and future recommendations.

The organizers of the west Grayson MFP recognized the unique challenges of resident household food environments in this rural area, similar to Dean and Sharkey (2011). With a goal of inspiring participants to “create food security for themselves” (Allen, 1999, p.123), the EBP was initiated to increase access to fresh produce through home gardening, an avenue appropriate to the geographic and cultural setting. Data from the Preliminary 2014 Survey indicated the need for further investigation and was used to shape the research questions for this study. Once the inquiry was focused and given purpose, a review of the existing literature on home gardening, food security, food access, and Grayson County’s agricultural history was compiled to provide guidance and grounding to the research process.

CHAPTER 2: LITERATURE REVIEW

Home Gardening

Current literature notes that, around the world, home food gardening has been a subsistence or supplemental form of food procurement throughout settled human history, yet the practice has been experiencing a steady decline in the United States since the nineteenth century (Galhena et al., 2013; Niñez, 1987; Sharp & Castellano, 2013). This decrease of home food production over the past two centuries has been linked to the industrialization and consolidation of the food system, migrations of populations into urban areas, and an increase in the availability of mass-produced commodity foods (Lyson, 2004; Sharp & Castellano, 2013). Historically, there have been significant gardening “movements” in the United States that occurred during the Panic of 1893, World War I (1914-1918), the Great Depression (1929-1939), World War II (1939-1945), and the economic recessions of the 1970’s to early 1980’s. During these periods, citizens independently produced food with government encouragement and/or in response to related economic hardship and crises that affected the food supply, and thereby strengthened national food security (Andress & Clark, 2015; Bassett, 1981; Niñez, 1987).

Specifically during the wartime movements, various levels of government encouraged gardening so industrial and agricultural resources could be redirected toward military efforts, including freeing some agriculture workers to serve in the military (Andress & Clark, 2015; Schupp & Sharp, 2012; Sharp & Castellano, 2013; Tucker, 1993). The United States Food Administration worked to increase domestic food security during WWI by encouraging the presence of home economics education and by labeling food production as a patriotic duty. Similarly, the War Food Administration launched a National Victory Garden Program during

WWII (Andress & Clark, 2015; Bassett, 1981). The USDA claimed 20 million people engaged in victory gardening at schools, homes, community plots, workplaces, and farms in 1943 and 1944 (War Food Administration, 1944). Though this extensive government support is cited as influential in historic increases in gardening, Tucker (1993) suggested a citizen response to the rise in food prices and food shortages during war years had more impact on gardening than government propaganda. This suggestion can be seen in Gladwin and Butler's (1982) work on home gardening among small, part-time Florida farmers that showed an increase in the significance of home gardens during the drought and agricultural economic conditions of the late 1970's and early 1980's.

Researchers have not specifically indicated food affordability as a key motivator for home gardening (Kortright & Wakefield, 2011; Schupp & Sharp, 2012); however, it is clear that economic hardship and food supply disruptions have been connected to historic movements that addressed food security by encouraging food production and preservation (Andress & Clark, 2015; Niñez, 1987; Sharp & Castellano, 2013). Inspired by these recurrences, Allen (1999) specifically indicated gardening as a potentially more sustainable community food security (CFS) project than the current United States food security safety net of government- and privately-organized emergency food programs. The author described how this safety net, inclusive of programs and organizations such as SNAP or FA SWVA, is vulnerable to fluctuations in funding, political agendas, volunteer interest, and food donations. Community food programs in low income and low food access areas that can “create opportunities for low income people to define and create food security for themselves” (Allen, 1999, p. 123) were advocated for.

Home gardening projects have been found to increase access to fresh produce while also empowering individuals to take ownership of food security efforts in their neighborhoods (Gray et al., 2014). Winne (2008) described how food from community garden plots could be a necessity for those who live paycheck to paycheck. A study on home gardening and food preservation practices by a population of elderly in rural Appalachian Kentucky concluded that gardening “can have a significant impact on the dietary status of older persons” (Quandt et al., 1994, p. 198). Litt, Hale, and Buchenau (2015) discussed how community and home gardeners in Denver, Colorado, consumed more fruits and vegetables per day than non-gardeners (5.7, 4.6, 3.9 times per day, respectively). Rural residents in low-income communities with low food-access indicated gardening was a source of supplemental produce during the growing season, though how much food the gardens actually contributed to household food security was unclear (Hendrickson, Smith, & Eikenberry, 2006; Smith & Morton, 2009).

Home gardens, opposed to community or school gardens, may be viewed as private, self-serving endeavors, which may help explain why they “have been overlooked, understudied, and unsupported by government agencies, non-governmental organizations, and academics” (Taylor & Lovell, 2014, abstract). In opposition to this, for some, such as those in rural areas with low income and limited transportation, home garden initiatives could have the long-term potential to be an inexpensive social service to reduce reliance on food security assistance programs, increase vegetable and fruit intake, and provide opportunities for physical activity (Quandt et al., 1994; Morton et al., 2008). In comparing the rural and urban patterns of giving and obtaining food, researchers Morton et al. (2008) found low-income rural households were more likely to exchange garden produce with friends, family and neighbors when compared to a low-income urban group. Researchers also reported that the low-income rural group had a greater chance of

attaining the recommended servings of vegetables and fruits in their diets simply because 58% of these residents, compared to 23% of their urban counterparts, had access to a personal, family member's, or friend's garden (Morton et al., 2008).

Another study on food sharing in rural North Carolina found garden produce to be the most common type of food gifted to adults aged 70+ years compared to foraged foods, baked goods, cooked foods, groceries, and pre-made meals (Quandt et al., 2001a). The community practice of food exchange, specifically sharing garden produce, while notably unpredictable and not necessarily distributed based on need, should be considered when investigating the nutritional and social impacts of home gardening on rural communities (Morton et al., 2008; Quandt et al., 2001a; Quandt, Arcury, McDonald, Bell, Vitolins, 2001b). Thus, through the gifting of homegrown produce, home gardening, appearing somewhat physically and socially isolated, can be seen as a public good, especially in rural areas. The social cohesion and community reciprocity around home gardens may be less obvious than that of community or school gardens, but home gardening efforts are making noteworthy contributions to the health, food access, financial savings, and general civic welfare of rural communities.

Diverse sets of motivations, including food production for personal consumption, recreation, education, cultural reasons, and barter or profit, in addition to the aforementioned, have been found to influence participation in home gardening. A connection to a garden can also increase access to fresh produce, yet barriers to home gardening do exist (Gladwin & Butler, 1982; Kortright & Wakefield, 2011; Shupp & Sharp, 2012; Winne, 2008). Perceived resources of time, space, and money as well as motivation and interest in food production are vital to encouraging participation in home food production. As Kortright and Wakefield (2011) point out, "establishing a garden takes considerable effort, and it also takes knowledge" (p. 49-50).

Warning advocates not to pontificate on gardening as the solution to food security, Winne (2008) goes so far as to ask the question, “is gardening for everyone?” (p. 55), and highlights the need for training, technical assistance, and simple inspiration.

Importantly, demographic factors such as race and ethnicity, socioeconomic conditions, and geography can intersect with barriers to home gardening to magnify them (Sharp & Castellano, 2013). Others discussed how personal wellbeing and health conditions could hinder the ability to garden (Gladwin & Butler, 1982; Quandt et al., 1994). Taylor and Lovell (2014) indicated the need for future academic work to characterize the various barriers to home food gardening. The practice of home gardening has been strongly correlated with home ownership and income, suggesting economic advantages might affect participation in food production (Smith, Greene, & Silbernagel, 2013). Therefore, there is a need for urban home gardening research to focus on lower income households, allowing the development of effective methods to mitigate barriers and provide opportunities for households to contribute to their personal and community’s food security (Taylor and Lovell, 2014).

Despite these barriers, it has been suggested that the emerging social movement to localize the United States food system has resulted in a rise in home food gardening (Schupp & Sharp, 2012; Andress & Clark, 2015). Researchers Schupp and Sharp (2012) along with Kortright and Wakefield (2011) supported this suggestion, reporting a complex set of motivations were behind the presence of home food gardens, including interest in engaging with local, sustainable food systems and a desire to increase consumption of fresh, nutritious foods. While interest in local food does seem to have influence on the decision to engage in home food production for some, the following section will explain a level of social exclusion that may exist

within the local food movement. This further emphasizes the importance to consider other factors that inspire engagement in home gardening.

Local Food Perspectives of Home Gardening

The term “local,” when used to characterize food products and systems lacks a definitive definition and is subject to interpretation based on various factors and perspectives (McFadden, 2015). Physical distances, political boundaries, and individual perceptions of locality all contribute to the diverse understandings of local food. McFadden (2015) argues the local food movement as “the most dynamic segment of the food system” (p. 1), and hence very challenging to define. The first federal initiatives to support local food markets began in the 1990’s with the Fresh Program, where the Department of Defense partnered with the USDA to acquire fresh produce for state institutions, prioritizing small- and medium-sized farms local to each state (Liang, 2015). Federal-, state-, and community-level initiatives, such as *Know Your Farmers*, *Know Your Food* (National), *Buy Fresh Buy Local* (Virginia), and *Buy Eat Live Local* (Blacksburg, Virginia), have since built a network to support the organization and maintenance of local food projects and systems across the United States.

The term “civic agriculture” describes a counter-trend to industrial agriculture that works to strengthen community identity, food security, and social equity through engagement in local food culture (Lyson, 2004). Examples of civic agriculture include farmers’ markets, community-supported agriculture business models for farms, and community gardens. McFadden (2015) describes civic agriculture as “a lens through which political, socioeconomic and environmental concerns about the conventional food system are addressed” (p. 1), and indicates local foods as potentially the most visible sector of civic agriculture.

Excitement around localizing the food system has gained political, social, and economic momentum in the last 20 years, yet Hess (2009), DeLind (2011), and Meenar and Hoover (2012) offered critiques of the local food movement, inclusive of gardening projects. They discussed how the promotion of local foods can often create geographic, economic, and social barriers for some people to engage. Trivette (2012) emphasized that price as well as available time and means of transportation are often barriers for low-income residents to shop at farmers markets or purchase community supported agriculture memberships. Commenting on social dynamics that can occur within local food culture, Lavin (2010 & 2009) argued that organic and local food movements are now more motivated by the creation and defense of an identity rather than by the original desire to simply feed oneself through accountable food sources. The argument is that political anxieties linked to the industrial food system around globalism, environmental degradation, oil dependency, food access, animal welfare, and food worker injustice have evolved to also include social anxieties around the loss of community and the loss of authentic relationships with nature. He quoted Wendell Berry and added, “recent trends in food activism have announced that eating is a political, economic, environmental, aesthetic, and ethical act” (Lavin, 2009, p. 1). Thus, participation in local food culture can give some a sense of political power and social identity amid a globalizing world.

As a result of these social and economic barriers, concerns fueling the local food movement are often seen as those of the “wise and benevolent upper-middle-class” (Lavin, 2010, p. 2). Winne (2008) warns of a level of “moral arrogance” (p. 133) that can occur within local food movements when consumers, especially those with low-incomes, are expected to consider food sources the highest priority in their budget. This elitist and limiting approach to food system reform, often described as “vote with your dollar,” offers an explanation for some of the

barriers for low-income people to participate in local food systems. Social justice and equitable access to high quality food was an original “pillar” of the organic movement, yet farmers quickly found it challenging to provide products accessible across income-levels while also maintaining an economically viable business (Winne, 2008).

Connecting these “responsible consumer” critiques to home food production, Lavin (2010) referenced and distilled Michael Pollan’s narrative of home gardening as a privileged consumer protest against the industrial food system. This characterization of home gardening is biased and quite different than understanding home food production as a necessary act of survival, as Duncan (1999) described for the various subsistence gardens in a rural Appalachian region. As mentioned previously, historic economic hardship and disruptions in the food supply have impacted household food security in United States, inspiring home gardening efforts. The recent presence of home gardens strongly correlates with economic advantages (Smith et al., 2013), but home gardening in the United States, in many contexts, has been far removed from any form of politics and primarily utilized for food procurement (Gladwin & Butler, 1982; Quandt et al., 1994). Home gardening and the subsequent food gifting can bridge “the economic, social, cultural, and political dimensions of community life” (Lyson, 2004, p. 28) to promote healthier citizens, build social cohesion, and cultivate a sense of autonomy within an ambiguous food system. Therefore, home gardens can be seen as a form of civic agriculture and considered a viable facet of local food systems that contribute to the wellbeing of communities.

Food Security and Food Access

Described in the previous section, historic food security work in the United States, inclusive of gardening projects, was initiated to address issues of food access and nutrition. To

gain a deeper understanding of food security, academics have analyzed household and community food environments, which include issues of food access and poverty. Food insecurity and nutrition policies were first introduced in the 1930's with the school lunch program and the Food Stamp Program (FSP), now titled the Supplemental Nutrition Assistance Program (SNAP), or EBT (electronic benefits transfer) (Muller & Wallinga, 2015). Although these were initiated as temporary federal food and nutrition programs to prevent and treat food insecurity in the United States during the Great Depression, both became permanent policy along with WIC in the 1970's (Allen, 1999; Muller & Wallinga, 2015).

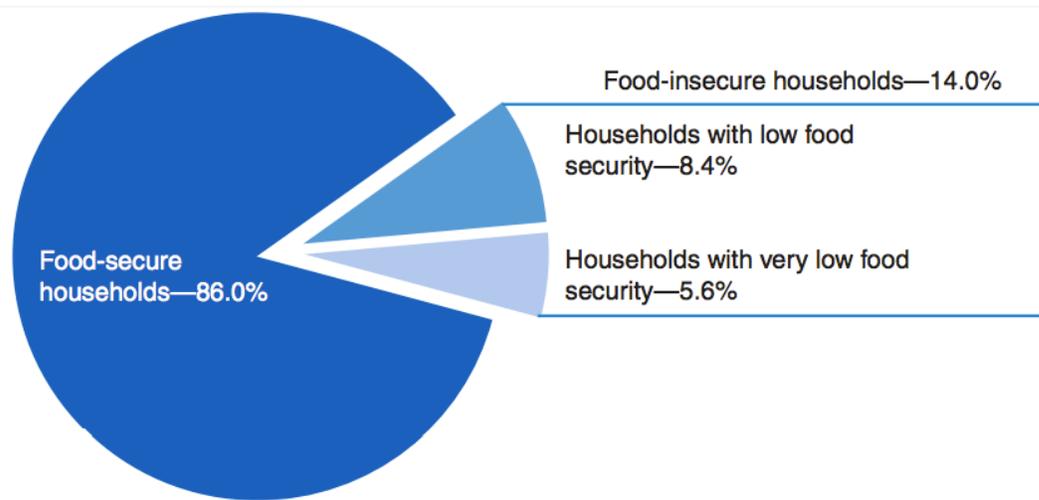
According to Chilton, Breen, & Rabinowich (2015), "research has shown that SNAP reduces the severity of food insecurity and promotes health for children and families" (p. 116). Early 1980's conservative budget cuts dramatically reduced funding for food safety net programs, including the FSP (Winne, 2008). As a result, local communities, non-profit organizations, and faith-based institutions began organizing emergency food stations, such as food pantries and soup kitchens, to address the subsequent "food gap." Emergency food programs and organizations have been on the rise ever since, and limited storage for perishable foods led this new safety net to begin offering processed, less healthy foods disproportionately to those who were food insecure (Guptill, Copelton, & Lucal, 2013; Manetzki & Tuckermanty, 2007; Palmer, Chen, & Winnie, 2015; Winne, 2008). A shift in food insecurity management from entitlement programs, such as SNAP, to the emergency food system, inclusive of food banks and pantries, also arguably increased the level of social exclusion, reducing low-income participation in the consumer economy and consequently a source of identity for low-income communities (Guptill et al. 2013).

While “poverty and food insecurity may not necessarily be synonymous... there is a strong overlap” (Burns, 2004, p. 8). The federal poverty guidelines, a simplification of the poverty thresholds which are unique to each region and used for Census Bureau statistical purposes, for the 48 contiguous states and Washington D.C. were defined in 2014 as an income of \$11,670 for a one person with \$4,060 added for each additional person in the household (US DHHS, 2014). Further, the USDA Economic Research Service (ERS) (2014) defines low-income areas to have a poverty rate at or above 20 percent *or* a median family income at or below 80 percent of the area median family income. The USDA Agricultural Marketing Services (AMS) (n.d.) designates a low food access area when a rural region has a significant number (at least 500 persons and/or at least 33% of the census tract's population) of residents living more than 10 miles from the nearest supermarket. The combination of low income and low food-access reflects the original Food Desert measurement, which is no longer used by the USDA.

The most recent USDA study on food security revealed that 14% of households in the United States were considered food-insecure in 2014 (*Figure 3*) (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2015). In the same work, the analysis was narrowed twice to low-income households with an income below 185% of the poverty threshold as well as an income directly below the poverty threshold. It was found that food insecurity rates were significantly higher than the national average of 14% at 33.7% and 39.5% respectively. For comparison, another narrowed analysis showed only 6.3% of those with incomes above 185% of the federal poverty guidelines were food insecure. From this data, it is clear that “food insecurity was strongly associated with income” (Coleman-Jensen et al., 2015, p. 13). While many food-insecure households were able to rely on a small number of basic foods, which reduced variety in their

diets, to avoid reductions or disruptions in food intake, households with very low food security (5.6%) (*Figure 3*) did experience disrupted eating patterns when “they could not afford enough food” (Coleman-Jensen et al., 2015, p. 8).

Figure 3. United States Households by Food Security Status in 2014



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2014 Current Population Survey Food Security Supplement.

The definition of “food security” has undergone many shifts since it first emerged through 1960’s and 1970’s international development work (Anderson & Cook, 1999). The USDA ERS currently upholds the first section of Anderson’s (1990) definition of food security, meaning “all household members had access at all times to enough food for an active, healthy life” (Coleman-Jensen et al., 2015, p. 4 & 8). From this designation, the USDA then determined that food insecurity exists when households are, “at times, unable to acquire adequate food for one or more household members because they [have] insufficient money and other resources for food” (Coleman-Jensen et al., 2015, p. 8).

Expanding upon the above definition of food security, the Food and Agriculture Organization (2009) maintains that “food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (p. 1). The seemingly most comprehensive definitions of food security, food insecurity, and hunger used in the literature and indicated by Anderson and Cook (1999) as “influential in the development of a theoretical framework for food security” (p. 143) are as follows:

Food security is defined as access by all people at all times to enough food for an active, healthy life and includes at a minimum: a) the ready availability of nutritionally adequate and safe foods, and b) the assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies). *Food insecurity* exists whenever the availability of nutritionally adequate and safe foods or the ability to acquire acceptable foods in socially acceptable ways is limited or uncertain. *Hunger*, in its meaning of the uneasy or painful sensation caused by a lack of food, is in this definition a potential, although not necessary, consequence of food insecurity. *Malnutrition* is also a potential, although not necessary, consequence of food insecurity (Anderson, 1990, p. 1574-1576).

In considering Anderson’s (1990) work, Quandt and Rao (1999) developed five indicators of food insecurity (described as “no food”, “skipping meals”, “choosing medications or food”, “choosing bills or food”, and “personal action”) among 192 residents 65 years and older in a rural Appalachian community. The indicator most relevant to my investigation was described as taking “personal action” within the last six months to either address or prevent food shortage in the household. The researchers found that these actions were the most frequently

reported indicator (21%) of the five among this group of rural adults. The types of personal actions were condensed into four possibilities, including “actions that result[ed] in free food for household members,” “actions that defer the cost of food,” “actions to conserve food or stretch food dollars,” and “actions that use social networks to obtain food” (Quandt & Rao, 1999, p.30). Of those who took “personal actions” in response to anticipated food insecurity, 75% reported actions that resulted in free food. As the most frequently reported of the four personal actions, examples consisted of receiving commodity foods, applying for SNAP benefits, and getting food at a food pantry. From the Anderson (1990) definitions and the Quandt and Rao (1999) study, it can be claimed that choosing to participate in a food pantry, such as the West Grayson MFP, indicates a level of food insecurity, regardless of income.

When considering the “broader context of household food security by examining it in relation to factors such as food environment and poverty” (Palmer et al., 2015, p. 136), many advocates, practitioners, and scholars began to piece together a concept known as community food security (CFS). In the late 1980’s and early 1990’s, the previously independent goals of providing nutrition education, supporting environmentally-sound food production, and reducing hunger and poverty began to converge under the umbrella of CFS work (Anderson & Cook, 1999). While Anderson and Cook (1999) have called for a more refined theoretical framework for CFS, Hamm and Bellows (2003) proposed a definition that contains the diverse actors, projects, and objectives that have been characterized as CFS work: “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” (p. 37). Palmer et al. (2015) echoed this and emphasized the importance of also “maximizing... democratic decision-making” (p. 136) in the most widely cited definition of CFS. CFS

frameworks also consider the intersection of “issues of hunger, health, and sustainability as well as the social significance of food in daily life” (Kortright & Wakefield, 2011, p. 39). As food security focuses on individual household food access, CFS studies the systemic forces shaping a community of households’ food access and promotes an economically, environmentally, and socially sustainable community-based food system.

Contrasting the culture of poverty theory from the 1950’s, researchers are emphasizing work on households’ and communities’ particular “food ways” (Guptill et al., 2013) in order to understand food choices. Truant and Neff (2015) indicate a food environment includes “all aspects of our surroundings that may influence our diets, including physical locations” (p. 426) as well as marketing, media, and social experiences. It is clear that access to appropriate and affordable foods has been indicated as a key component in achieving food-secure communities. Dean and Sharkey (2011) emphasize that understanding the household food environment, including food access and economic status, of rural and low-income peoples is key to understanding food choices. Having compared the food environments as well as fruit and vegetable intake of rural versus urban areas, these researchers found distance from food retail stores a significant factor in food accessibility for rural households. Research on food access often focuses on low-income urban rather than rural environments, and as a result, academics and policy makers maintain a limited understanding of “the particularities of the rural experience” (McEntee, 2011, p. 239). It is important to understand these rural characteristics because “rural America’s food insecurity problems may be serious” (Morris, Neuhauser, & Campbell, 1992, p. 52S).

Limited work has investigated the spatial distribution of food resources in rural communities (Dean & Sharkey, 2011; Sharkey, 2009), yet the literature has affirmed various

barriers to food access in rural areas, highlighting transportation as a crucial obstacle (Blanchard & Matthews, 2007; Dean & Sharkey, 2011; Morris et al., 1992; Hendrickson et al., 2006; McEntee, 2011; Quandt & Rao, 1999; Sharkey, 2009; Smith & Morton, 2009). The USDA ERS (2009) acknowledges that, “in small-town and rural areas with limited food access, the lack of transportation infrastructure is the most defining characteristic” (p. 2) affecting food security. A limited number of grocery stores with high prices and low quality has become common in many rural food environments as the food retail industry consolidates and local, smaller stores shut down (Blanchard & Matthews, 2007; Guptill et al., 2013; Morris et al., 1992; Sharkey, 2009). In many rural areas, the cost of transportation to obtain food has increased for residents as they either must travel, as a result of no other options, or choose to travel farther to a larger store, such as Wal-Mart, for a greater variety of food options with lower prices and higher quality (Blanchard & Matthews, 2007; Guptill et al., 2013; Hendrickson et al., 2006; Sharkey, 2009).

Quandt and Rao (1999) found that health (i.e. disease and disability), social (i.e. a network of family and friends), and material (i.e. assets and income) barriers can affect the food security of older rural adults. Some researchers have indicated a social network can facilitate more food gifting and resource reciprocity, resulting in a stronger food safety net system, and a lack of these social resources can leave some unable to cope with food insecurity (Morton et al., 2008; Quandt et al., 2001a; Quandt et al., 2001b; Quandt & Rao, 1999; Smith & Morton, 2009). Smith and Morton (2009) found three dominant themes that affected food access and choice in a rural low-income and low food-access area: (a) personal and household determinants, such as historical experiences with food and household economics, (b) social and cultural environments, such as the way the community viewed and responded to food insecurity, and (c) the external food environment, such as transportation and food costs and low access to a variety of foods.

While the challenges to food access in rural areas often reflect those of low-income urban regions in the United States, scholars often acknowledge the rate of poorer health among rural populations compared to urban counterparts. The geographic expanse of the food environment in rural areas often lead to a “rural effect,” exacerbating some of the barriers to food security (Dean & Sharkey, 2011; Guptill et al., 2013; Morris et al., 1992). Many acknowledge home food production as a potential “rural advantage,” given the historical and once ubiquitous nature of the practice (McEntee, 2011; Morton et al., 2008; Quandt et al., 2001b). As previously mentioned, access to a personal, family, or friend’s garden significantly increases consumption of fresh fruits and vegetables for those in rural areas. Therefore, rural communities with low-income and limited food access could potentially benefit from programs that work to counter the downward trend of home gardening in the United States.

Addressing Food Security with Home Food Production

While community and individual food production is becoming of great concern within the recent local food movement, gardening projects dating back to the 1890’s had similar goals of “providing food, supplementing incomes, and relieving strains on limited... [government] funds” (Bassett, 1981, p. 2). These were better described as community food security projects able to increase access to fresh produce and thought to have the ability to “cast off the moral malaise” (Winne, 2008, p.56) of low-income people affected by the economic downturn. Allen (1999) emphasizes the USDA Community Food Projects as successful examples of grant-funded urban and community garden projects from the 1990’s. She further described CFS as seeking to “re-link production and consumption with the goal of ensuring both an adequate and accessible food supply in both the present and the future” (p. 117).

With a focus on school and community projects, Trauant and Neff (2015) indicated gardens as part of the build food environment as they have the potential to address food security and the availability of healthy food. Community gardening has the ability to promote health, nutrition, community food security, and community development (Guitart, Pickering, & Byrne, 2012; Kingsley & Townsend, 2006; Traunt & Neff, 2015), yet Gray et al. (2014) recognized that “for many low-income communities, community gardens are frequently few and far between, and cash-strapped households have neither the time nor access to transportation to travel to community gardens” (p. 188). In a comprehensive review of the literature on urban home food gardens, Taylor and Lovell (2014) suggested home food gardens are a “more durable form of urban agriculture” (abstract) than community gardens.

Although home gardeners in Toronto, Canada did not choose to grow food out of necessity, gardening did impact CFS by ways of “accessibility, nutrition, safety, cultural acceptability, self-reliance, and environmental sustainability, at the level of the individual, household, and neighborhood” (Kortright & Wakefield, 2011, p. 50). Gray et al. (2014) added that home gardens are able to provide health benefits, financial savings, and a space for social cohesion through increasing access to fresh produce and empowering individuals to begin taking ownership of food security efforts in their neighborhoods. Thus, there is a call for more research on the contribution of urban home gardens to the food security of low-income households (Taylor & Lovell; 2014).

Kortright and Wakefield (2011) made mention of other urban gardening projects besides the one studied, La Mesa Verde in San Jose, California, including City Slickers’ Backyard Garden Program in Oakland, California, Growing Gardens in Portland, Oregon, and GRuB’s Kitchen Garden Project in Olympia, Washington. Rural-focused gardening projects such as

Grow Appalachia (GA), a program out of Berea College in Berea, Kentucky founded in 2009, offer a tailored set of resources for individuals and communities to engage in food production (GA, n.d.). GA program organizers recognize the aforementioned challenges related to food access and food security in rural regions of Appalachia. In response, they offer a wide range of resources to emphasize “food production in order to introduce as much no-cost, fresh healthy food as possible to the region. The basic goal is to help as many families grow as much of their own food as possible” (GA, n.d., “What We Do”) through offering garden grants, workshops, technical and physical assistance, harvest donations, entrepreneurship training, capacity building, chickens, and high tunnels in a way that honors and preserves local tradition and heritage (GA, n.d.). Paralleling the goals of these home garden projects, Ackerman-Leist (2013) proposes procuring food at home, through gardening, raising animals, and wild foraging, as supplemental strategies for building a more resilient food system while also reconnecting communities to their environment.

It is clear from the literature that access to a personal, family, or friend’s garden significantly increases consumption of fresh fruits and vegetables, especially for those in rural areas. Additionally, for those with low-income and limited access to large grocery stores that offer a larger variety of higher quality foods at lower prices, access to a garden increases access to fresh produce. Consequentially, encouraging more home gardens in rural areas serves the individuals that reside in that household and often other members of a community. As home gardens can be considered a public good, there is justification to support projects, such as GA, that encourage home gardening efforts in low-income, low food-access, and rural areas of the United States.

Economic and Agricultural Transitions in Grayson County

As alluded in the introduction chapter, a local history of Grayson County was compiled as part of the conceptual framework to advance an ethnographic perspective of the region beyond EBP and MFP events, further grounding the study design. Schoenburg, Snell-Rood, Swanson, Dollarhid, & Wright (2014) note that while Appalachia has a diverse population with various complex histories, the region also has distinctly high levels of poverty, obesity, depression, and malnutrition. Though coal production tends to characterize the region and often dominates Appalachian studies literature, there are many territories not affiliated with mining. There is a call for developing a historical narrative to “understand poverty and underdevelopment” (Duncan, 1999, p. xiv) in non-coal Appalachia. Billings and Blee (2000) emphasize that researchers and academics must take “into account the agricultural history of the region” (p. 16). For these reasons, the economic and agricultural transitions of the county are important to discern the current status of low income and low food access in Western Grayson.

Transportation challenges were dominant themes throughout the historical work of Grayson County and remain a characteristic to this day. Present-day Grayson County is long and narrow with the Mount Rogers National Recreation Area and the Grayson Highlands State Park at the western end, potentially limiting road and economic development. For reference on the dimensions of the county, US route 21 runs 17 miles north to south and US route 58 runs 46 miles east to west. Fields (1976) describes how the rural and mountainous geography had “the country... cut off” (p. 47), and the continued lack of roads and railroads into the late 1800’s allowed “the mainstream of the Civil War [to pass] by” (p. 10).

Another prevalent topic of the county’s history was the importance of agriculture. Grayson County’s slave population of 6.7% in 1860 kept some on plantations while many others

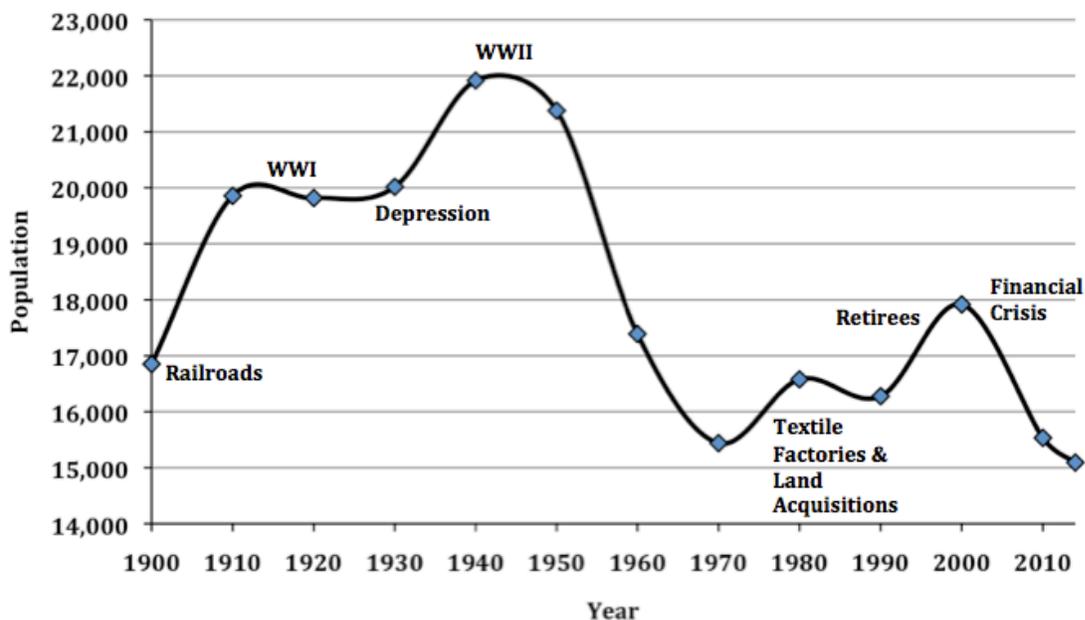
subsisted on smaller homesteads (Hergesheimer, 1860; Fields, 1976). After the Civil War, the lure of industry wages began to draw people out of the disrupted agricultural system. Fields (1976) describes how, though the first factory was constructed in 1884, “it was the railroads that, at the turn of the century, created instant towns in their quest for timber and textiles” (p. 10). Within a decade after the Board of Supervisors of Grayson County published a 1897 booklet and map of available resources in the region, “boom towns” materialized (Fields, 1976). The railroad stations in Whitetop and Troutdale were the main sources of transportation in and out of the county, as roads remained underdeveloped throughout the economic growth (E. Clayton, personal communication, March 15, 2016).

Fields (1976) highlights Troutdale, which is notably about 4.5 miles from where the west Grayson MFP is now located, as “a typical example of this later age when people left the land to work for wages” (p. 162). In 1902-1904, the Marion railroad was extended into Troutdale, and the Troutdale Trading Company was established just after. Goods that previously had to be transported over the mountains by wagon on rough dirt roads from Marion (now just over 18 miles by a paved road) became readily available by train (Greer, 1953). The Trading Company also consolidated produce from farmers to ship out in exchange for cash or goods, and the expanding system of mills and furniture factories increased railroad shipments in the 1910’s. The railroad and subsequent job opportunities offered in Troutdale at that time resulted in a swell of residents in the county (*Figure 4*) as people migrated from up to 60 miles away (E. Clayton, personal communication, March 15, 2016). By 1920, the population of Troutdale had reached about 1,800 (Greer, 1953), compared to 194 in 2000 (US Census Bureau, 2003).

Unfortunately, unregulated timbering in the early 1900’s, coupled with a failed business deal, led to bankruptcy for factories and lumber mills in the early 1920’s (Greer, 1953). By

1934, the railroads stopped making a profit, and the tracks were removed (Greer, 1953). While Troutdale’s economy and transportation was dramatically impacted during this time, Fields (1976) describes how the period of economic dependence on industry was short enough for many to maintain their farming knowledge and return to agriculture. Farming’s renewed economic importance even led to the Grayson County Agricultural Advisory Council (1927) and County Agricultural Agent to prepare “A Five Year Program for the Development of Agriculture in Grayson County, Virginia,” in 1927.

Figure 4. Grayson County Population 1900-2014 (Forstall, 1995; US Census Bureau, n.d.b)



By the Great Depression, though “everyone noticed the shortage of money” (Fields, 1976, p. 213) and cash was made through the herb and root trade, public works projects, and moonshining, a number of residents of Grayson County maintained a fairly resilient lifestyle by having returned to family farms. Many who returned to their somewhat mechanized farms still

had the necessary skills, were not yet dependent upon hybrid crops, and could save seed each year rather purchase it. New crop and livestock breeding, coupled with small local mills that had persevered, allowed Grayson County residents to hold a fairly stable food system through these rough years (Fields, 1976). The area even experienced growth in population during the 1930's (*Figure 4*). This return to agriculture may account for Grayson County building its population throughout the rough years of the 1930's, reaching it's peak just before World War II (1939-1945) (*Figure 4*), when national "unemployment disappeared almost over night... to the war effort" (Fields, 1796, p. 223). During the war, 2,500 men from Grayson County enlisted and left, and a number of families moved to cities to work in defense plants (Fields, 1796).

Grayson County's population was in dramatic decline in the 1950's and 1960's, where about 28% of Grayson County residents (just under 6,000 people) left the area (*Figure 4*). This potentially reduced the county's capacity for agricultural production. The 1,140-person population growth seen in *Figure 4* during the 1970's could be explained by the short-lived textile industry from the late 1970's into the 1990's (E. Clayton, personal communication, March 15, 2016). Another noteworthy consideration of Grayson County's agricultural history is the period of land acquisition by negotiation or condemnation carried out by the Forest Service National Recreation Area planners starting in the late 1960's (Sarvis, 2011). As a result, small farms and agriculture began disappearing until the United States Congress moved to cut funding for farmland purchases in the mid 1990's (E. Clayton, personal communication, March 15, 2016). Today, it is clear that the Forest Service owns much of the northern and western portions of the county, which may explain low population (*Figure 4*), underdevelopment, and, therefore, limited economic capacity to support small businesses.

Despite few economic opportunities in the county, just under 2,000 people moved to Grayson in the 1990's (*Figure 4*). The county website indicates that those who moved away for work after World War II and others interested in retiring in a rural area with natural beauty have moved into Grayson County, potentially explaining this temporary increase in population and contributing to greater average age over the years (Grayson County Tourism Department, 2015). However, over the past 15 years, almost 3,000 individuals have once again left the county, leaving the population at around 15,000 in Grayson, the lowest in over 100 years (*Figure 4*). The causes of the steady decrease in population in the early 2000's are significant, yet still unclear. For future work, it would be worthwhile to determine if the affects of the 2008 financial crisis caused residents to once again seek "work elsewhere," or if the construction of out-of-county box stores contributed to even less job opportunity (Goetz, 2006).

To aid in understanding how the dynamic of community self-reliance in the 1930's shifted to Grayson County's present level of food insecurity, the current state of agriculture in the region was reviewed. Agriculture is still a dominant career in Grayson County. From the 2012 Census of Agriculture County Profile, it is clear that the number of farms decreased by 10% and the total farmland has decreased by 4% while the average size of farms has increased by 7% between 2007 and 2012. Additionally, livestock and livestock product sales (\$25,668,000) accounted for 81% of the total market value of products sold (\$31,636,000) in 2012, with almost 83% of those sales comprised of cattle and calves (\$21,288,000). Cut Christmas trees and short rotation woody crops (\$3,160,000) ranked third in total value of sales after cows milk (\$4,070,000) and were almost 53% of total the market value of crops (\$5,968,000). Livestock production has dominated the total market value of sales in Grayson; yet, the county is currently ranked first in the state for production of cut Christmas trees and

short rotation woody crops (USDA Census of Agriculture, 2012). From the recent decrease in farm number and increase in farm size, it can be inferred that farmland consolidation, potentially by outside owners, is occurring in Grayson County, leading to less economic opportunities in agriculture for residents (Lyson, 2004).

From the economic and agricultural transitions described, it can be seen that small-scale and diverse food production carried Grayson County through the challenging years of the Great Depression. However, it appears that loss of family-owned land through population decline, Forest Service land acquisition, and farmland consolidation resulted in a decrease of small farms and therefore production diversity, which could explain the region's reduced capacity for community self-reliance. Further, the closing of various extractive and textile industries throughout the last century led to fewer job opportunities, particularly in western Grayson, reducing the "critical mass" for any small businesses to succeed in "bust towns" like Troutdale, possibly explaining why Grayson County is categorized as low-income (USDA ERS, 2015a). Since "the food retail industry goes where it can make the most money" (Winnie, 2008, p. 87), low-income coupled with both the rural landscape and a decreasing population may explain why three of four grocery stores have closed in the county since 2007 (USDA ERS, 2015b). This reduced food access for residents forces many to "drive 30 minutes" for food purchases (M. Stamper, personal communication, March 26, 2015).

With the current state of agriculture and food access in Grayson County articulated throughout the first two chapters, the methodology used in this research project is presented in the third chapter. Again, the purpose of this research was to further investigate if the EBP, a low-cost residential gardening program initiated in response to the present low food access and

food insecurity in Grayson County, acted as a springboard for further agricultural activities to impact community food security, food choices of individuals, and the local food system.

CHAPTER 3: RESEARCH METHODOLOGY

Introduction

Food insecurity research philosophies that “invite, recognize, and represent the voices of people experiencing food insecurity... as partners in research rather than objects of investigation” (Pine & de Souza, 2013, p. 72) better unearth the issues underpinning the food environment. Jacobson, Pruitt-Chapin, & Rugeley (2009) argue community-based participatory research, a type of community-engaged research (CEnR) (McDonald, 2008), is “one way to address the power imbalance in who defines poverty and what constitutes poverty knowledge” (p. 3) when addressing food insecurity. CEnR prioritizes partnerships between researchers and community members to ensure a culturally acceptable research design around a community-identified issue, and then ensures findings are shared with the community (McDonald, 2008). Recent qualitative food security research that engaged “community participation in the production of knowledge” (Pine & de Souza, 2013, p. 73) included focus groups (Jacobson et al, 2009), in-depth semi-structured interviews (Gray et al., 2014; Kortright & Wakefield, 2011), and traditional surveys (Schupp & Sharp, 2011) as the primary research methods.

As the West Grayson County mobile food pantry (MFP) does not require proof of income, the EBP allows households to determine their own personal level food security and presents an opportunity to legitimize any economic struggle (Allen, 1999; Jacobson et al., 2009). This technique of allowing families to “self-identif[y] as low-income or... [as experiencing] recent financial hardship such as job loss” has been used in other successful projects in the United States (Gray et al., 2014, p. 191). By consulting with residents involved with the MFP and the EBP, community input was used to identify locally relevant research objectives and

questions. In accordance with CEnR, a purpose of this study was to provide feedback to the community, and key findings have been appropriately disseminated to EBP organizers in addition to academic venues.

With the guiding philosophy of recognizing the “lived experience” (Rossman & Rallis, 2012, p. 96), this research developed a platform for participants to tell their stories while evaluating the impact of the EBP. This investigation was designed to “represent the voices of people experiencing food insecurity” (Pine & de Souza, 2013, p.72) in a meaningful way. As all stories were viewed as real and relevant representations of food insecurity, a combination of academic research and community narrative provided a more critical and grounded understanding of food security in this region. Feedback from participants on the EBP was then blended with existing literature to guide the project into the future in a way that would be practical within the context of the Grayson County community and other parts of rural Appalachian.

Study Design

In 2013, the volunteer site coordinator (VSC) of the MFP in western Grayson County, supported by an AmeriCorps volunteer, polled clients to discern the potential of families supplementing their food budgets through home gardening or farming. When the challenges of in-ground gardening were determined, EarthBox®s were purchased and distributed to 50 families spring of 2014. To follow up with EBP participants, the Preliminary 2014 Survey (Appendix A) was developed in collaboration with a representative of Grayson LandCare, Inc. and the VSC of the West Grayson MFP. This survey was carried out in the fall and collected more formal data regarding the participants experience with their first growing season and the

Independence Farmers Market (IFM). Research design, and later, triangulation of results, began by reviewing preliminary data collected in 2013 and 2014.

In order to structure this research project and provide focus to the inquiry, elements of ethnography and phenomenology were used to design a conceptual framework for this in-depth case study. Compiling a local history of Grayson County, participating in MFP and EBP events during the 2015 growing season, and collaborating with key informants generated an ethnographic perspective of food access and agriculture in the region. This preliminary research provided a cultural context that guided the study design and grounded the findings. With a desire “to understand several individuals’ common or shared experiences of a phenomenon... in order to develop practices or policies” (Creswell, 2013, p. 81), the entire study was heavily framed through a phenomenological lens using semi-structured interviewing techniques. The unit of analysis was the common experiences bound by participation in the EBP. The multilayered descriptive approaches of ethnography and phenomenology contributed to the “real-life context” that defined this research as a case study (Rossman & Rallis, 2012). These two traditional qualitative research approaches (ethnography and phenomenology) were blended into a multi-layered and systematic case study inquiry. Further, through a CEnR approach, academic-community partnerships were used to ensure a culturally acceptable research design around a community-identified issue (McDonald, 2008). This research project was designed to “frame food insecurity using a lens that accurately reflects the lived experiences” (Pine & de Souza, 2013, p. 76) of participants, allowing for the development of community-based solutions within the scope of the EBP.

In some traditional regional studies, the “complex relations of class and culture have been either overlooked or grossly simplified” (Reid & Taylor, 2002, p. 19). A deeper and more local

understanding of the various cultures, ideologies, social structures, and power dynamics allows research to gain an “expertise that is ‘placed’- grounded in the thick particularity and holism of living communities and local history” (Reid & Taylor, 2002, p. 24). Thus, observations and ethnographic research looking “at social groups or culture, at actions and interactions of individuals and groups” (Rossman & Rallis, 2012, p. 90) was used to develop cultural and historical context for inquiry design, data collection, analysis, and interpretation of results.

With the goal of incorporating cultural sensitivity into the research design, the Director of the Appalachian Studies program at Virginia Tech, Dr. Anita Puckett, was strategically invited to join the graduate committee. Consequentially, suggestions to ground the research were honored through volunteering in MFP distributions and EBP events May-November of 2015 to learn from residents of western Grayson County and become familiar with the setting. Observations were compiled in the introduction section, *West Grayson Mobile Food Pantry & The EarthBox® Program*. Additionally, distribution of free seeds, starts, and gardening information to all participants of the monthly MFPs was carried out to introduce EBP participants to me as a gardener and MFP volunteer. This was an attempt to minimize the power dynamic that can occur between researchers and subjects, while building trust and a gardening association with potential participants (Creswell, 2013; Rossman & Rallis, 2012; Seidman, 2013). Through a graduate-level Appalachian Studies seminar course, some of the existing ethnographic research on rural and non-coal Appalachian counties as well as a history of Grayson County was explored to inform the study design and ground the results. With the support of a historian focused on Troutdale, Virginia, the economic and agricultural history of Grayson County led yet another dimension to understanding the area and is described in the literature review section, *Economic*

& Agricultural Transitions in Grayson County. Again, observations and historical research helped develop the ethnographic context and added triangulation.

With a goal of evaluating the EBP by determining “what meaning... the participants in the program make of their experiences... [and] how... these [perspectives] contribute to the functioning of the program” (Rossman & Rallis, 2012, p. 133), the entire study was primarily framed using a phenomenological lens. A key driving force behind phenomenological exploration is the desire “to understand several individuals’ common or shared experiences of a phenomenon... in order to develop practices or policies” (Creswell, 2013, p. 81). While Creswell (2013) describes traditional phenomenological studies as consisting of “in-depth and multiple interviews” (p. 81), iterative interviewing was unrealistic given the timeline of a master’s thesis.

Though this research was subject to time constraints, strategies were exercised to develop and organize one-on-one semi-structured interview questions that would allow participants to both describe their experiences with the EBP and indicate contexts or situations that influenced those experiences (Creswell, 2013). Questions were further refined to consolidate the phenomenological “three-interview approach” of “focused life history”, “details of the experience”, and “reflection on the meaning” into a single one-and-a-half to two-hour session (Seidman, 2013). After the interview and research protocols were designed, approval from the Institutional Review Board (IRB) at Virginia Tech was obtained.

Research Questions

Choosing the semi-structured approach to interviewing provided participants the opportunity to share their experiences in a manner of comfortable conversation, rather than a strict question and answer format. In developing the interview protocol, consideration was also

taken to address culturally appropriate language and speech patterns (Puckett, 2005). Through investigating the experiences of EBP participants, the interview questions were framed around the following research questions:

- 1) Why and how did households choose to participate in the GGBP, and what goals did they want to accomplish in the project?
- 2) What did participants value about engaging in the GGBP?
- 3) What, if any, new activities or thought patterns were inspired by participating in the GGBP, and were the original participant goals met or altered?
- 4) What challenges did participants experience, and what do participants feel they need in order to accomplish their goals?
- 5) What solution to food access do participants propose, and does it involve the local food system?

With similar research goals, an interview protocol from Gray et al. (2014) was reviewed, shaping the interview questions. Semi-structured questions such as, “Could you tell me when and why you first started gardening?” and, “Why did you decide to apply for an EarthBox® and continue into the second year of the garden program?” allowed participants to provide a full description and context of their experiences. Through the collection of this rich and focused data, the common experiences of participants could become evident through basic qualitative analysis structure (i.e. data organization, reading and memoing, describing and classifying the data into codes and themes, interpreting the data, and representing or visualizing the data) (Creswell, 2013). Additionally, utilizing the concept of indexicals from semiotic theory broadened comprehension of how the act of gardening in a container could lead to detailed

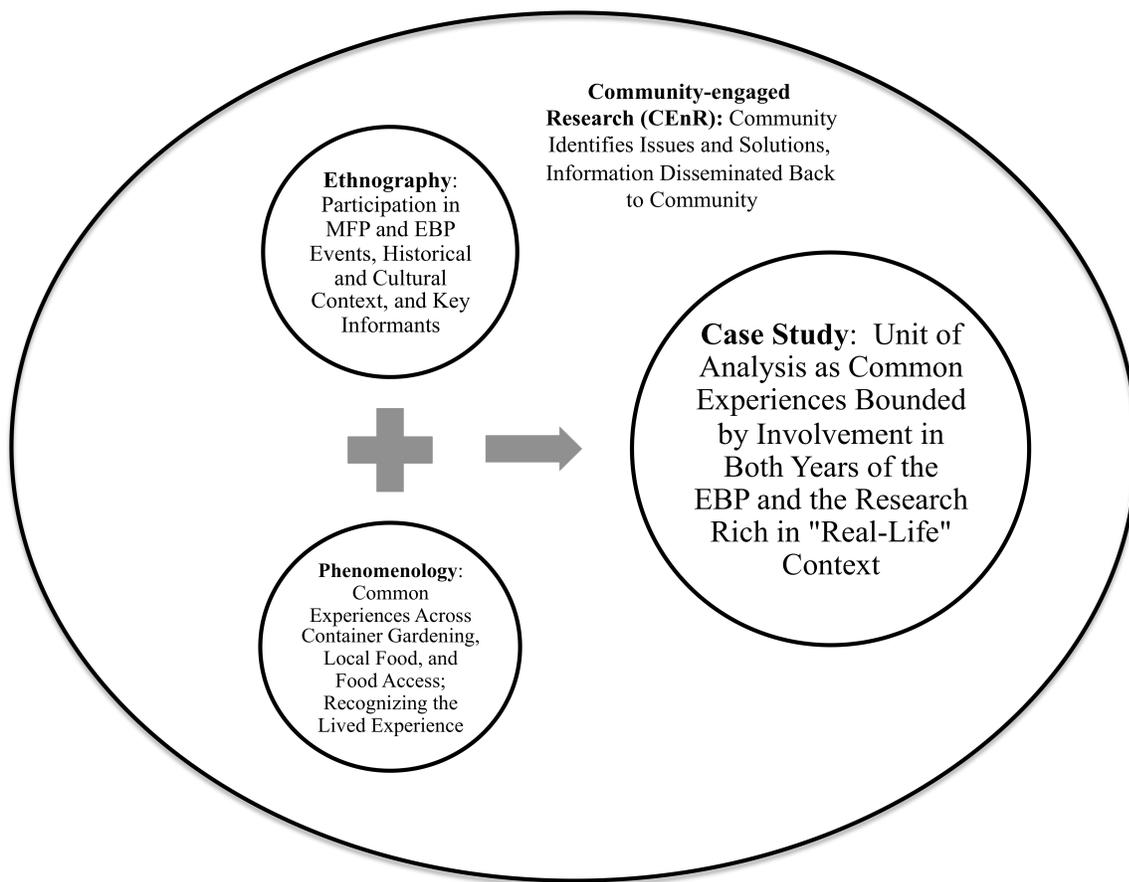
agricultural narratives and stories for participants as well as the values, meanings, and emotions connected to those memories.

As this research investigates “a real-life, contemporary bounded system” (Creswell, 2013, p. 97) and works to “capture the complexity” (Rossman & Rallis, 2012, p. 273) of the EBP, this project was understood as a case study. The EBP, an existing program affecting a small group of individuals, was bounded by space, western Grayson County, and time, 2014 through 2015. This qualitative research design has provided an in-depth understanding into participant experiences through the collection and analysis of multiple sources of data including preliminary survey data, semi-structured interviews, field notes, and researcher observations (Creswell, 2013). Compiling significant emergent themes (ET) from analysis helped to form an understanding of the impact of the EBP (case study) from the perspective of participants (phenomenology).

In August and September of 2015, a protocol for semi-structured interviews as well as a supplementary demographic form was developed using a CEnR lens. A volunteer of the MFP acted as a “key informant” (Creswell, 2013, p. 94) in the western Grayson County community to review and provide feedback on the protocol. It is noteworthy to state that the key informant was instrumental in the existence of the EBP and was paid hourly through the AFP Community Enhancement grant for their work with the EBP as well as for their time aiding the research design and data collection. After gaining IRB approval in September of 2015 for the IRB approval letter (Appendix B), interview protocol (Appendix C), demographic form (Appendix D), informed consent form (Appendix E), and recruitment materials (Appendix F), participant recruitment began via phone calls and in-person at the monthly MFP.

Framing design and data collection with CEnR and ethnographic approaches resulted in immersing myself in the local culture through participation in the MFP and EBP events, gaining historical perspectives of the region, and collaborating with key informants. The unit of analysis was the common experiences bound by participation in the EBP, and the multilayered descriptive approaches of ethnography and phenomenology contributed to the “real-life context” that defined this research as a case study (*Figure 5.*) (Rossman & Rallis, 2012). Therefore, two traditional qualitative research approaches (ethnography and phenomenology) were applied through a CEnR lens to develop a multi-layered and systematic case study inquiry (Rossman & Rallis, 2012; Creswell, 2013).

Figure 5. A Conceptual Framework for Systematic Inquiry



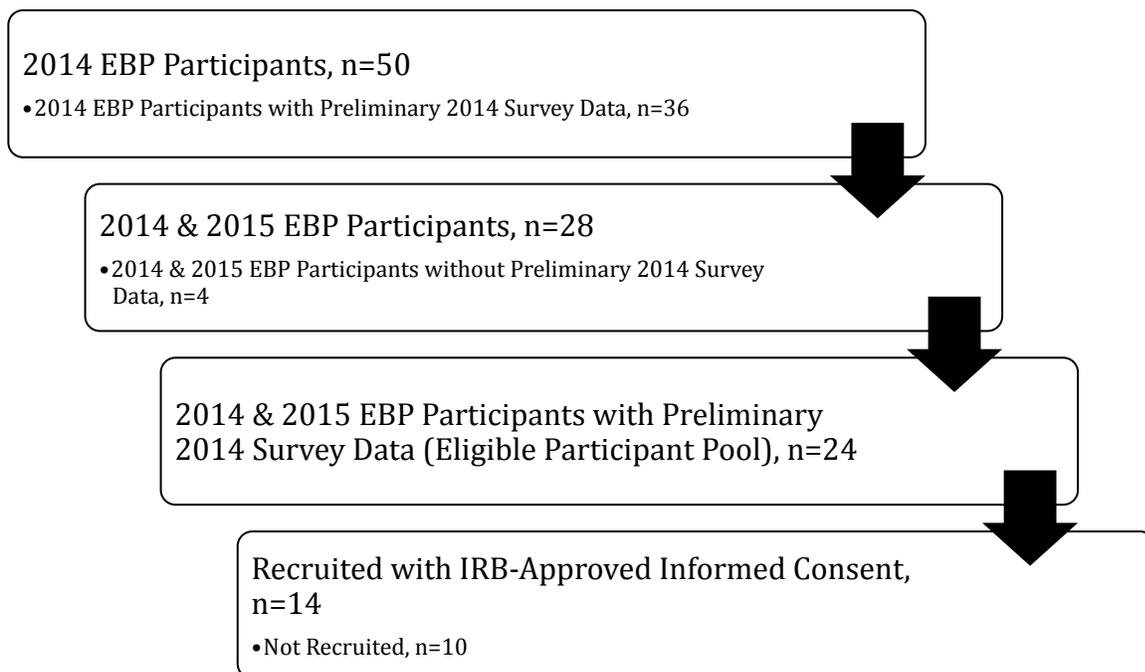
Participants and Data Collection

While 50 individuals obtained EarthBox® container gardens in the spring of 2014, just over half of those participants (n=28) continued into the project's second year (*Figure 6*). Additional containers, soil, fertilizer, seeds, starts, and other materials were distributed in May 2015. Purposeful sampling for interviews occurred, as research participants were limited to MFP clients who participated in both years of the EBP (n=28) as well as the Preliminary 2014 Survey (n=36) (*Figure 6*). This decision to limit participants allowed for results to be calibrated based on a common level of participation in the EBP and the ability to use data from the Preliminary 2014 Survey in analysis. Though young children were present at a number of interviews, participation in the final research project was also limited to 18 years or older. Participant recruitment occurred both via phone calls and in-person at the MFP using IRB-approved recruitment scripts. The key informant utilized the phone script to conduct a first round of phone calls to introduce EBP participants to the research project. Limitations included the key informant's personal commitments and a number of participant voicemail boxes being full. After this attempt to inform all participants of the research, follow up via phone-calls and in-person at the MFPs to schedule interviews occurred.

While EBP participation was often expressed or recorded as individual participation, it was quickly realized that many individuals had the support of their family members. In three cases, a family member over the age of 18 was present in the interview to discuss their involvement with the EBP. Though only two were actually involved with the EBP, all three individuals were included in the informed consent process. For clarity, interviews connected to one set of containers were referred to as a participant "unit" and these additional individuals were presented independently as appropriate. Of the 24 participant units who participated in

year two of the EBP and the Preliminary 2014 Survey, a total of 14 (58%) were recruited and interviewed for this graduate research project (*Figure 6*). Ten EBP participants were not recruited due to death (n=1), disinterest (n=1), lack of time (n=3), giving their gardens to someone else (n=2), and the researcher's inability to contact them (n=3).

Figure 6. Flowchart of EBP Research Participant Units



Interviews were scheduled and conducted October 2015 through January 2016, and all participants voluntarily signed IRB-approved informed consent forms and filled out IRB-approved demographic forms. Interviews per the IRB-approved protocol were preferentially conducted in-person and either at the participant's home or a location of their choice. The interview questions were divided into five parts; introduction, gardening background, EarthBox® gardens, food access, and reflection. Each section contained open-ended questions with supporting sub-questions to probe deeper into the participants' experiences. Sessions began

with informal conversation regarding the participants' history. Asking the question, "Could you tell me a little about yourself?" allowed participants to discuss how, why, and when they settled in Grayson County. This part of the interview provided context for the rest of the discussion and flowed into the four remaining interview questions. The length of interviews ranged from just under twenty minutes to three hours, depending on where participants chose to steer the conversation.

IRB approval was obtained in order to minimize harm to participants. Ample time was allowed for participants to read the informed consent form and ask clarifying questions about the documents and research. Interviews were audio-recorded with consent from participants and transcribed. All interview transcripts were kept confidential, and all identifying information, names, and locations were removed. Transcriptions and notes were labeled with a participant unit code and individual participant pseudonyms before being coded, analyzed, and interpreted using phenomenological data analysis techniques (Creswell, 2013). After transcriptions were complete, audio-recordings were deleted. All transcriptions have been saved on a password-protected computer for the minimum of three years.

In addition to an audio recording, field notes were taken during and after each interview on the time and place of the interview as well as the personality and appearance of each participant (Creswell, 2013). These notes, combined with hand-written and typed details regarding research design, participant recruitment, data collection, and analysis processes, documented pertinent decisions, actions, and memos during the research as a form of audit trail (Rossman & Rallis, 2012). A summary and timeline of data collection and analysis is found in *Table 1*.

Table 1. Data Collection and Analysis Timeline

Dates	Activities
Fall 2014	<ul style="list-style-type: none"> • Preliminary 2014 Survey
March 2015 – March 2016	<ul style="list-style-type: none"> • Compiled Historical Narrative of Grayson County
May – November 2015	<ul style="list-style-type: none"> • Participated in EBP and MFP Events to Observe, Collaborate with Key Informants, and Familiarize with EBP Participants
August - September 2015	<ul style="list-style-type: none"> • Developed Interview Protocol • IRB Approval Sought and Obtained • Began Recruitment through Purposeful Sampling
October 2015 - January 2016	<ul style="list-style-type: none"> • Conducted Semi-structured Interviews (n=12) with EBP Participant Units (n=14), Took Field Notes, Recorded Memos, and Collected Demographic Information (n=16) • Transcribed Interviews with Preliminary Analysis
February 2016	<ul style="list-style-type: none"> • Finished Transcriptions and Preliminary Analysis
February – March 2016	<ul style="list-style-type: none"> • Recorded Memos • Iterative Analysis through Multiple Reviews of Data • Refine Final Emergent Themes and Categories

Data Analysis

As previously noted, interviews were audio-recorded with consent from participants and then later transcribed using Express Scribe Transcription Software (NCH Software, n.d.). Each transcript was uniformly formatted, and as analysis was limited to referential speech (only content from dialogue), prosodies such as vocal syncopation, pauses, stresses of articulation, and accent were excluded. Though these types of speech patterns have great significance in determining meaning and importance conveyed through conversation, their documentation and analysis were not within the scope of this research. Only verbatim conversation and vocal nuances such as laughter were consistently captured. Following transcription and note consolidation, interviews were reviewed multiple times for familiarity with the content.

The basic qualitative interview analysis structure of data organization, reading and memoing, describing and classifying the data into codes and themes, interpreting the data, and

representing or visualizing the data was used through a phenomenological lens (Creswell, 2013). Transcriptions were open-coded by hand for significant statements; a phenomenological strategy Moustakas called “horizontalization” where all codes are considered of equal value and not yet grouped into emergent themes or categories (as cited in Creswell, 2013, p. 82). Statements were deemed significant if they pertained to the original research questions. Memos were captured either directly on transcriptions or in researcher notes. Researcher memos reflected questions or internal thoughts provoked by the data.

With another phenomenological strategy, preliminary codes were transferred to a codebook and then “clustered” into meaningful groups (Creswell, 2013). As these groups, or categories, were further organized under each research question and associated emergent theme (ET), the volume and diversity of thematic categories required an appropriate separation of data during analysis. Since research question 4 (What challenges did participants experience, and what do participants feel they need in order to accomplish their goals?) was two-pronged and resulted in separate content, ETs pertaining to research questions 1 through 4(1) and 4(2) through 5 were separated into two codebooks. Coding and code organization was an on-going process throughout and after the data collection period. Therefore, the codebooks were revisited, reorganized, and revised as data was reviewed multiple times during analysis. Coding and analysis were maintained as an iterative process in order to unearth deeper content and connections among the participants’ shared experiences of participating in the EBP while also living in a low-food-access area in rural southwest Virginia.

Another Excel Document was created to hold relevant Preliminary 2014 Survey data as well as information collected from demographic forms and interviews via content analysis. Supporting quotes from participants that corresponded to the final categories were collected

throughout coding and analysis. These quotes were edited for grammar so only content was evaluated and then included in this document on a separate tab. Incorporating all identified significant statements, ETs, and ethnographic context, a detailed phenomenological description of individual and common participant experiences was constructed. This information triangulated the findings and provided a deeper context for the qualitatively emergent themes. As this was a case study, analysis was “rich in the context of the case” (Creswell, 2013, p. 101).

The original research proposal, which gained committee approval in May 2015, included a focus on utilizing semiotics (Ahern, 2012; Gumperz & Hymes, 1972; Mertz & Parmentier, 1985) to frame data collection and analysis. Upon further investigation and consultation with committee member Dr. Anita Puckett, it was determined that, while the theory has tremendous applicability in this field of research, this level of analytical framework was beyond the scope of a master’s project in horticulture. In light of these realizations, the concept of indexicals, or learned associations (Puckett, 2005), were drawn on from semiotic theory to understand how and why the act of gardening in a container could rouse profound values, meanings, and emotions for participants. Using this theory revealed that these seemingly dramatic responses were actually socially-embedded or culturally-influenced (Ahearn, 2012) by past agricultural experiences. This objective understanding of the subjective meaning system around food production was used to justify why participant values related to gardening, and the consequential emotional responses, were included in the final program evaluation.

Trustworthiness of the Study and Validation Strategies

Rossmann & Rallis (2012) claim that the trustworthiness of qualitative research is judged by three interrelated sets of standards: (1) the study was conducted according to norms for

acceptable and competent research, (2) the study was conducted in an ethical way that honored participants, and (3) the researcher was sensitive to the politics of the topic and setting (p. 60). As outlined previously, this case study was systematically organized using traditional qualitative data collection and analysis techniques via ethnographic and phenomenological research approaches in a deliberate and intentional conceptual framework. As a form of transparency and way to maintain focus, a research journal was maintained as a form of audit trail (Borg, 2001; Rossman & Rallis, 2012). Moreover, diverse and involved graduate committee members and MFP volunteers, as key informants, all acted as reviewers throughout the entire research process, lending validity to the instrument of research (Creswell, 2013; Rossman & Rallis, 2012).

Ethical considerations involving human subjects were compliant per IRB approval for all relevant documents (recruitment, data collection, and informed consent) (Rossman & Rallis, 2012). Additionally, potential power dynamics were addressed by utilizing CEnR techniques, honoring participant's lived experience as a valid representation of food insecurity and creating "spaces to listen to the voices of those who are disenfranchised" (Pine & de Souza, 2013, p. 74). Creswell's (2013) recommendation of "prolonged engagement and persistent observation" (p. 250) was also fulfilled. Observations of the MFP and EBP events coupled with key informant engagement in the research allowed sensitivity to cultural norms. A foremost goal was to create "a safe space... for stories to be told" (Fisher, 2002, p. 421).

Anfara, Brown, and Mangione (2002) recognize the critiques of qualitative research design and analysis as being privatized and thus too vague. Strategies to disclose and defend the methodological rigor of this type of research include documenting and publishing the relationship between data sources and research questions, how codes become themes, and how

findings are not simply derived from a fraction of the complex situation under investigation, but are triangulated using multiple sources of data.

In response to the first suggestion, nineteen interview questions (*Table 2*) were mapped to the research questions in *Table 3*. *Table 2* also shows the phenomenological “three-interview approach” of “focused life history” (Part 1 & 2), “details of the experience” (Part 3 & 4), and “reflection on the meaning” (Part 5) (Seidman, 2013). As mentioned previously, triangulation occurred through preliminary survey data in 2013 and 2014, observations at the MFP and EBP events, ethnographic research on non-coal rural Appalachian regions, a historical compilation of the region, and interviews specific to this research in 2015. The resulting rich contextual description can be used in determining the study’s applicability, or generalizability, to other situations, (Rossman & Rallis, 2012). In relation to the remaining suggestion, excel documents containing codebooks and supporting data are available by contacting the researcher, and tables representing code mapping are presented in the findings chapter.

Table 2. Interview Questions

Number	Interview Questions Independent of Probes
Part 1	Introduction
1	Could you tell me a little about yourself?
Part 2	Gardening Background
2	Could you tell me when and why you first started gardening?
3	What do you like about gardening? Why is it important to you?
4	What have you grown, and what all did you do with it?
5	How did you cook or fix what you grew?
6	If you ever stopped gardening, why did you do so?
Part 3	EarthBox® Gardens
7	Why did you decide to apply for an EarthBox® and continue into the second year of the garden program?
8	Was gardening in an EarthBox® and/or containers what you expected it to be, and why?
9	Was there anything difficult about gardening in the EarthBox® and/or other containers?
10	What would you need to continue gardening in your EarthBox® and/or other containers?
Part 4	Food Access
11	Do you eat any differently when your garden is growing compared to when it's not growing?
12	Do you save money when eating from your garden?
13	Where do you do your grocery shopping, and why? What kinds of food do you get there? What do you not like about these grocery stores?
14	Do you wish there were other options? If so, what would they look like?
15	Have you visited the Independence Farmers Market? If yes, what did you think about it?
16	What would you suggest to encourage more folks to attend [the IFM]?
Part 5	Reflection
17	Has gardening in an EarthBox® and/or containers been important or of value to you? In what ways?
18	What do you think could happen if more folks gardened in Grayson County?
19	Do you have any ideas on how to improve and/or expand the project through gardening and/or visiting the Farmers Market?

Table 3. Research Questions Mapped to Interview Questions

Research Question	Interview Question
1) Why and how did households choose to participate in the GGBP, and what goals did they want to accomplish in the project?	1, 2, 5, 7, 8
2) What did participants value about engaging in the GGBP?	3, 4, 8, 17
3) What, if any, new activities or thought patterns were inspired by participating in the GGBP, and were the original participant goals met or altered?	8, 11, 12, 13, 14, 15, 16, 17
4) What challenges did participants experience, and what do participants feel they need in order to accomplish their goals?	6, 9, 10, 16
5) What solution to food access do participants propose, and does it involve the local food system?	4, 10, 13, 14, 15, 16, 18, 19

Researcher Reflexivity

Alkon and Agyeman (2011) discuss the importance of a feminist social science concept, positionality, in food justice work. This is the “understanding that our lived experiences, particularly those of race, class, and gender, shape our worldviews” (p. 3). In qualitative research, researchers are often referred to as “the instrument of the study” (Rossman & Rallis, 2012, p. 33). Therefore, it is important for researchers to be explicit to the public about their positionality, purposes, and any beliefs, values, assumptions, and biases relative to personal

investment in the topic (Creswell, 2013). Included as part of the conceptual framework, this intentional examination is called researcher reflexivity, and I will now present myself as I feel situated in my research.

Currently a graduate teaching assistant with the Civic Agriculture and Food Systems program at Virginia Tech, I am a 26-year-old predominately Caucasian female and master's candidate studying under Dr. Susan Clark in the Department of Horticulture at Virginia Tech. While both of my parents grew up in low-income households and engaged a form of subsistence or supplementary food production, I was raised in an upper-middle-class family with my mother's simple herb garden, a handful of hobby tomato plants, and my father's extensive horseback-riding resort. Raised in northeast Kentucky by an orthopedic surgeon (mother) and an agro-tourism business-owner (father), I have never experienced food insecurity nor identified as having limited resources.

Interestingly, I unintentionally remained in the Appalachian region enrolling at Virginia Tech in the Department of Mathematics in 2008. Inspired by my investment in the Environmental Coalition at Virginia Tech, my minimal time supporting the Sustainable Food Corps garden, and the addition of a Green Engineering minor in my sophomore year, I began to find a simple level of autonomy in vegetable gardening as an undergraduate, and thereafter developed an excitement for local food systems. Five months after graduation in May 2012, I was volunteering on a dairy goat and subsistence vegetable farm in southern Minnesota when I took a position in Pocahontas County, West Virginia, as an AmeriCorps Volunteer farm-to-school coordinator. During my year in West Virginia, I worked with county schoolteachers and students to build and maintain gardens at three schools, led an afterschool gardening and cooking club, and collaborated with county farmers to bring local foods into the school cafeterias.

When my farm-to-school coordinator contract ended, I moved to Olympia, Washington, to work a second year of AmeriCorps with a local non-profit, GRuB (Garden-Raised Bounty), to coordinate the Kitchen Garden Project (KGP), a project that built backyard gardens, provided vegetable seeds and starts, and offered free gardening education for households with low incomes. The project provided various garden options, such as containers or stacked raised beds, to accommodate lack of land ownership or limited mobility. In addition to coordinating garden builds, I facilitated educational workshops and continued a garden mentor program to support beginning gardeners in the project.

Part of GRuB's mission was to inspire positive personal and community change by bringing people together around food and agriculture as well as to partner with people with low-incomes to create empowering individual and community food solutions (GRuB, 2016). The KGP not only provided the resources for households to produce their own food, but also worked to create "spaces to listen to the voices of those who are disenfranchised [and] opportunities for community-driven advocacy" (Pine & de Souza, 2013, p. 74). A Leadership Team was organized specifically to invite KGP gardeners to join staff and volunteers in helping evaluate and guide the project. By elevating community participation in this way, GRuB was able to develop more inviting and sensitive programming based on the needs, values, and concerns of those experiencing food insecurity.

As a witness to the stories shared between gardeners, I continue to find food gardening as effective platform to develop connections between people within a community who otherwise may have never met. Students in the farm-to-school program and families in the KGP learned to grow and cook together, developing pride in a newfound identity. The acts of personal food production can bring a sense of sovereignty within a complex, ambiguous, global, and

industrialized food system. The capacity of the KGP to provide food, community, self-identity, empowerment, and leadership opportunities impacted me, and thus I returned to Appalachia to cultivate similar projects within southwest Virginia.

GRuB's mission to include the voices of people with low-incomes in the creation of "food solutions" inspired my current philosophy around community work. Pine and de Souza (2013) call for participatory research that works with food insecure communities to understand how they respond to low-food access and how a community's capacity can be leveraged to transform the food environment from within. I firmly believe that community engagement and participant guidance is crucial to the success of related research, programs, and projects. With this as a philosophical cornerstone, I wanted to continue this work in a way that accurately reflected the lived experiences of those experiencing food insecurity.

This newfound academic interest in both region-specific community-based food production and participatory "food scholarship" (Pine & de Souza, 2013) lead me to return to Virginia Tech for graduate school. My experiences in West Virginia and Washington State landed me the position of graduate teaching assistant with the Civic Agriculture and Food Systems program. Stemming from my interests in learning more about vegetable production and in working under Dr. Susan Clark, I chose to pursue a master's degree in Horticulture. My passion is to share home gardening experiences and stories with others in the Appalachian region, I am driven to invite and accurately represent the voices of those experiencing food insecurity, and my excitement comes from seeing people ignite a new, or rekindle a lost, identity with themselves and their communities through the simplistic yet unifying nature of food.

Limitations of the Study

As previously noted in the researcher reflexivity section, researchers are often referred to as “the instrument of the study” (Rossman & Rallis, 2012, p. 33), and thus a researcher’s positionality must be recognized as having influence on analyzing, interpreting, and representing the data (Creswell, 2013). This qualitative research drew upon semiotic theory to capture the “emic view,” the perspective of the participants, as closely as possible. While using indexicals in data analysis, participating in MFP and EBP events, and developing a cultural and historical context brought me closer to the emic understanding of the participant experience, it must be recognized that the “etic view,” the perspective of the researcher, is always present in the final analysis of any study, regardless of the aforementioned extensive steps to minimize it (Rossman & Rallis, 2012, p. 93).

While this work fell within Polkinghorne’s recommendation (as cited in Creswell, 2013, p. 81), of 5-25 interviewees for a viable phenomenological study, participation was limited by participant involvement in both years (2014 and 2015) of the EBP as well as by having available data from the Preliminary 2014 Survey. Interview participation was further limited by the factors described under the *Participants & Data Collection* section (death, disinterest, lack of time, indicating that they gave their gardens to someone else, and the researcher’s inability to contact them). As this was a case study on an existing program and interviewees choose to engage in both the EBP and these interviews, this was not a random sample of the Grayson County population, and consequently interview findings may contain a bias viewpoint of HFP. It is also important to note “the extremely challenging nature of data collection with a high-risk population” (Byker, 2011, p. 60), including those who are food insecure and/or low-income.

A final yet crucial limitation to any study is time. Given the two-year window allowed for master's research, the original goals were accomplished while also leaving opportunities for future work. The challenges of working with rural communities, including geographically dispersed populations with poor access to communication technologies, increased the required time for this research, preventing other methods of data collection such as additional interviews and focus groups. This also limited the possibility of soliciting perspectives of research findings and interpretations from participants through member checking (Creswell, 2013). Community-based participatory research approaches, with academic-community partnerships that intentionally generate equitable control of the research process, allow a study to be conducted with full community engagement, diminishing researcher-researched power dynamics even more. This more refined version of CEnR is difficult to achieve and often requires cultivating long-term relationships. Therefore, a basic CEnR framework, with a commitment to developing community partnerships and addressing local health issues, was used (McDonald, 2008).

Through the lens of CEnR, and with the guiding philosophy of recognizing the lived experience of participants as valid representations of food insecurity, this investigation was designed to alleviate power imbalances that can occur during food security studies and focus the study on issues specifically identified by the Grayson County community. Preliminary ethnographic approaches to region-specific issues further helped to guide research design and develop cultural and historical context for a deeper understanding of the results. Semi-structured phenomenological interviews were utilized to understand the lived experiences of EBP participants. Two traditional qualitative research approaches (ethnography and phenomenology)

were blended through the lens of community engagement into a multi-layered systematic case study inquiry (Creswell, 2013; Rossman & Rallis, 2012).

CHAPTER 4: FINDINGS

Findings from the Preliminary 2014 Survey, semi-structured interviews, observations, and field notes, are reported in this chapter. Survey and demographic data is presented first for a quantitative impression of EBP and interview participant population. Then, qualitative findings are explained, explored, and summarized using supporting data drawn from interviews, observations, and field notes.

Preliminary 2014 Survey

Triangulation of the study began in fall 2014 with preliminary survey results from 36 of the 50 households (72%) who participated in the first year of the EBP. The demographics identified 14 (39%) enrolled in SNAP, 28 (78%) receiving social security benefits, and 18 (50%) with children in the home. When asked about the gardening experience, 27 (75%) expressed it was a positive experience (“good”, “very good”, “wonderful”, “loved it”, etc.), 4 (11%) remarked their experience was “okay,” and 1 (<3%) indicated their experience was “not good.” Referencing gardening support, 7 (19%) received assistance from others when maintaining their garden and 20 (56%) indicated they alone tended the box. While the original plan for participants was to grow green beans, survey results revealed that only 32 (89%) grew this specific crop, with some having grown different and/or multiple crops including lettuce, peppers, tomatoes, squash, and beets. All responders indicated that they will grow in the 2015 season, with interest in lettuce, tomatoes, beans, peppers, cucumbers, potatoes, squash, carrots, watermelon, flowers; “everything.”

Regarding the IFM, 10 (28%) participants had attended the market during the 2014 growing season. Though SNAP benefit use was not recorded, 5 (14%) made purchases and 7

(19%) returned to the IFM at least a second time. Though most participants did successfully grow food in their gardens and a number did attend the IFM, no one indicated a change in diet as a result of participating in the project. Upon reviewing both the Preliminary 2014 Survey results and EBP grant application, a problem statement was developed.

The original goals of the EBP were “to empower food-insecure families to grow some of their own food and to increase their intake of nutritious, fresh, and locally-grown fruits and vegetables; and to understand the health benefit and significance of a diet that includes fresh local produce” (Grayson LandCare, Inc., AFP CFS Enhancement Grant Proposal, 2014). While 75% of the 36 clients who responded to the Preliminary 2014 Survey expressed a positive experience with their first growing season and all indicated they would grow again in 2015, only 28% specified visiting the IFM in 2014 and none of the participants indicated a change in food choices or diet as a result of participating in the EBP. Therefore, the purpose of this research was to investigate deeper into whether the EBP acted, as the collaborators theorized, as a springboard for further agricultural activities to impact community food security, food choices of individuals, and the local food system.

Interview Participants

A total of 12 interviews with 14 participant units were conducted from early October 2015 to late January 2016. Interview recordings ranged from 19 minutes and 8 seconds to 2 hours, 21 minutes, and 9 seconds with an average recording length of 1 hour, 10 minutes, and 38 seconds. Exact lengths were challenging to calculate because many participants began the conversation before the recording device was turned on and also continued after the device was off. Further, some recordings included the time taken to go over and fill out both the informed

consent and demographic forms. All participants provided informed consent, answered all interview questions, and provided complete demographic information. Interview data was obtained through purposeful sampling from 56% (14 participant units) of the eligible participant unit pool (n=24), an acceptable response rate based on “the conceptual framework, research questions, genre, data-gathering methods, and time and resources” (Rossman & Ralis, 2012, p. 138). There were two units with a married couple who both provided informed consent and demographic information; thus, there is demographic information for 16 individual participants (Table 4).

Table 4. Individual Participant Demographic Information

Participant Unit Code	Participant Pseudonym	Age	Gender	Race	Total # in household	# of kids in household	SNAP?	Social Security (SS)?	Is SS main income?
P01	Gloria	55	F	W	2	1	N	N	N/A
P02	Donna	73	F	W	2	0	N	Y	Y
P02	Henry	75	M	W					
P03	Gretta	76	F	W	1	0	N	Y	Y
P04	Terri	70	F	W	2	0	N	Y	Y
P05	Dianne	65	F	W	3	2	Y	Y	Y
P06	Kathy	71	F	W	2	0	N	Y	N
P07	Virginia	70	F	W	1	0	N	Y	Y
P08	Carol	78	F	W	2	0	N	Y	Y
P08	Homer	78	M	W					
P09	Ada	63	F	W	2	0	N	Y	Y
P10	Angela	62	F	W	1	0	N	Y	Y
P11	Hannah	31	F	W	3	2	Y	N	N/A
P12	Carl	43	M	W	2	1	N	N	N/A
P13	Laura	52	F	W	2	0	N	N	N/A
P14	Michelle	53	F	W	3	1	N	N	N/A

All the individual participants (n=16) identified as white and ages ranged from 31 to 78 years with the average age of 63; 13 were female and 3 were male. It is important to note that no male participants were interviewed independent of their female partner. Henry (P02) and Homer

(P08) each joined their wife in the interview, and Carl (P12), while an independent participant unit with his mother, joined his girlfriend, Hannah (P11), in a joint interview.

Though all participants are considered to be food insecure based on visiting the MFP, only Dianne (P05) and Hannah (P11) were enrolled in SNAP (14% of participant units). Importantly, 3 participant units (21%), including the two enrolled in SNAP, were single female parent- (Hannah, P11) or grandparent- (Gloria, P01 & Dianne, P05) guardians with full custody of young children. Carl (P12) had joint custody of his 8-year-old child at the time of the interview. Michelle (P14) was married, and indicated her child was almost 18 at the time of the interview. Also, 8 participant units (57%), with an average participant (n=10) age of 71, indicated that social security benefits were their main source of income.

When narrowing the Preliminary 2014 Survey data (n=36) down to the 14 interview participant units, 11 (79%) expressed gardening in the EarthBox® was a positive experience (“good”, “very good”, “wonderful”, “loved it”, etc.), 2 (14%) remarked their experience was “okay,” and 1 (7%) did not indicate their experience. All 14 participant units indicated gardening challenges in 2014, including physical limitations, no space to garden, narrow gardening knowledge, and no access to a tractor. In fact, through a separate survey question, 9 (64%) participant units indicated they had “no help” with their EarthBox® garden in the first growing season. All of the interview participant units successfully grew at least one “picking” of beans in 2014, and 4 (29%) visited the IFM at least once.

Interview Emergent Themes

Qualitative analysis of the interview data resulted in six distinct emergent themes (ET) that related to the original research questions: (1) Motivations for EBP Participation, (2)

Meanings and Existing Values Connected to Home Food Production (HFP), (3) Impacts of HFP and EBP Participation, (4) HFP and Food Access Challenges, (5) Solutions to Gardening Challenges, and (6) Solutions to Gardening Access (*Table 5*). Research question 4 was found to produce two distinct ETs reported in *Table 5*.

Table 5. Emergent Themes In Relation to Research Questions

Original Research Questions (RQ)		Emergent Themes (ET)	
RQ1:	Why and how did households choose to participate in the EBP, and what goals did they want to accomplish in the project?	ET1	Motivations for EBP Participation
RQ2:	What did participants value about engaging in the EBP?	ET2	Meanings and Existing Values Connected to HFP
RQ3:	What, if any, new activities or thought patterns were inspired by participating in the EBP, and were the original participant goals met or altered?	ET3	Impacts of HFP and EBP Participation
RQ4 ₁ :	What challenges did participants experience?	ET4	HFP and Food Access Challenges
RQ4 ₂ :	What do participants feel they need in order to accomplish their goals?	ET5	Solutions to Gardening Challenges
RQ5:	What solution to food access do participants propose, and does it involve the local food system?	ET6	Solutions to Low Food Access

Initial codes from interviews and field notes were organized from open coding into 26 categories and then consolidated under the 6 ET (*Table 6*). Qualitative code mapping from initial codes to corresponding categories for ET1, ET2, ET3, and ET4 are found in *Table 7*. To validate the significance of these first 17 categories, *Table 8* reveals how many participant units (n=14) referenced an initial code within each category during the interviews. The initial codes

from ET5 and ET6 were consolidated directly from participant interviews as categories. The categories from the first four ETs are next explained and explored using supporting data, and the categories from the remaining two ETs summarized for dissemination to EBP organizers.

Table 6. Code Mapping: Categories and Corresponding Emergent Themes

Emergent Themes (ET)	Categories
ET1 Motivations for EBP Participation	1A. Limited Mobility 1B. Past HFP Experiences 1C. Curious About HFP Options
ET2 Meanings and Existing Values Connected to HFP	2A. Self-Sufficiency with HFP 2B. HFP as a Source of Wellness 2C. Prefer Fresh, Local, and/or Homegrown Foods 2D. Environmental and Health Concerns 2E. Family Support Network 2F. Community HFP Network 2G. Food Gifting and Lifetime Reciprocity 2H. HFP is a Community Asset
ET3 Impacts of HFP and EBP Participation	3A. Consume More Produce During Growing Season 3B. HFP Saves Money 3C. Interest in Future HFP
ET4 HFP and Food Access Challenges	4A. Geographic Access in Rural Areas 4B. Household and Community Economics 4C. Barriers to HFP
ET5 Solutions to Gardening Challenges	5A. Free and/or Low-cost Gardening Supplies 5B. Support with Manual Labor 5C. Alternative HFP Education 5D. Additional EarthBox@s
ET6 Solutions to Low Food Access	6A. Closer Affordable Food Options 6B. Local Produce Available in Stores 6C. Nutritionally Adequate and Safe Food Items 6D. Alternative IFM Hours 6E. Bulk Local Produce at Lower Cost

Table 7. Code Mapping: Initial Codes and Corresponding Categories for Emergent Themes 1-4

Categories		Initial Codes			
1A.	Limited Mobility	Age	Container Gardens Seem More Accessible	Disease, Illness, and Surgery	Gardening and Farming Require Hard Physical Labor
1B.	Past HFP Experiences	Farming or Gardening Experience	Food Preservation Experience	Family Food Production History	Experience Cooking from Scratch
1C.	Curious About HFP Options	Garden and Kitchen Experimentation	Try HFP in Containers	Learn New Things	Desire for Gardening Education
2A.	Self-Sufficiency with HFP	Security in Ability to Survive	Suspicion of Corporate and Government Leadership	Pride in Self-Reliance	Subsistence Agriculture as Necessity
2B.	HFP as a Source of Wellness	Gardening is Therapeutic	Sense of Empowerment and Ownership	Gardening is Healthy	Long-Term Love of Gardening
2C.	Prefer Fresh, Local, and/or Homegrown Foods	Prefer to Know Food Origins	Fresh Food is Healthier	Participation in Local Markets	Homegrown Food Tastes the Best
2D.	Environmental and Health Concerns	Trees Farms Harm the Community	Agriculture Chemicals are Poisonous	Food Additives are Not Healthy	Organic Food is Better for You
2E.	Family Support Network	Family HFP	Nearby Family	Family Garden Knowledge	HFP Brings Family Together
2F.	Community HFP Network	Strong Community around HFP	Knows someone in EBP or at MFP	Community Food Projects	Community Meals
2G.	Food Gifting and Lifetime Reciprocity	Community and Family Food Gifting	Intentionally Producing Extra Food	Sharing and Giving as Part of Local Culture	Supporting Those "In Need"
2H.	HFP is a Community Asset	HFP Knowledge is Important	HFP Defines the Rural Landscape	HFP is a Healthy Lifestyle	Preference of Food Farming over Tree Farming
3A.	Consume More Produce During Growing Season	Abundance of Fresh Produce During Growing Season	Home Garden Produce is Convenient	Eat More Produce When it's Fresh	Having a Garden Shapes Diet
3B.	HFP Saves Money	Fresh Produce is Expensive	Family Size Influences HFP	Reduces Travel to Grocery Store	Don't Purchase Homegrown or Gifted Foods
3C.	Interest in Future HFP	Inspired to Try Alternative HFP Options	Plans for Future Gardening	Interest in Animal Husbandry	Current Containers Don't Produce Enough
4A.	Geographic Access in Rural Areas	Limited Food Options in Grayson County	Travel Out of County for Work	Travel far for Medical Care	Stockpile Food that Saves
4B.	Household and Community Economics	Poor Local Job Market	Buys Groceries on Sale	Raising Children Alone	Limited Income
4C.	Barriers to HFP	Gardening Resources are Expensive	HFP is a Gamble	Time Constraints	Limited Physical Space

Table 8. Frequency of Category Appearance in Unit Interviews for Emergent Themes 1-4

Emergent Themes (ET)	Categories	Frequency (Units)
ET1 Motivations for EBP Participation	1A. Limited Mobility	11
	1B. Past HFP Experiences	14
	1C. Curious About HFP Options	11
ET2 Meanings and Existing Values Connected to HFP	2A. Self-Sufficiency with HFP	7
	2B. HFP as a Source of Wellness	13
	2C. Prefer Fresh, Local, and/or Homegrown Foods	14
	2D. Environmental and Health Concerns	7
	2E. Family Support Network	13
	2F. Community HFP Network	11
	2G. Food Gifting and Lifetime Reciprocity	14
	2H. HFP is a Community Asset	11
ET3 Impacts of HFP and EBP Participation	3A. Consume More Produce During Growing Season	12
	3B. HFP Saves Money	14
	3C. Interest in Future HFP	12
ET4 HFP and Food Access Challenges	4A. Geographic Access in Rural Areas	13
	4B. Household and Community Economics	12
	4C. Barriers to HFP	10

Emergent Theme 1: Motivations for EarthBox® Program Participation

In the original AFP grant proposal, EBP organizers recognized that many MFP participants had farming or gardening experience; however, 65% of clients were elderly and therefore “too disabled” to do so anymore (Grayson LandCare, Inc., AFP CFS Enhancement Grant Proposal, 2014). As EBP participants were required to apply for one of the 50 EarthBox®s, organizers targeted individuals with an interest in container gardening to set them up for success. Results revealed the motivations for EBP participation supported the preliminary findings and assumptions for project design. Of the 14 participant units, 11 (71%) were coded

for “Limited Mobility,” 14 (100%) for “Past HFP Experiences,” and 11 (79%) for “Curious about HFP Options” (Table 8).

Category 1A. Limited Mobility

Throughout the interviews, age, disease, illness, surgery, the accessibility of container gardens, and/or the physical labor required for gardening were indicated by 11 participant units. Limited mobility was often designated by a decline in gardening:

Dianne (P05): “I'm just a little bit too old to get out there in the garden and do like I used to do.”

Gretta (P03): “I gardened until I got... not able to do it anymore. I wasn't able to walk up to the garden, I can't stand up long enough to do the garden... I got cancer... and had to quit.”

Terri (P04): “The last couple years, I've not done a lot of gardening because I've got an artificial knee and he's [her husband] had some problems. He [her husband] don't run the tiller and stuff like he did. I don't either.”

Findings were triangulated by the Preliminary 2014 Survey data and demographic information. In the survey, 6 of the 14 participant units had specifically indicated disabilities, physical limitations, or health issues as posing a challenge to home gardening. Ten of the individual participants (63%) were 63 years of age (average age of 16 participant units) or older at the time of the interview, with one participant at age 62. Critical for determining the program’s success, many participants validated the EBP by discussing the significance of having container gardens as a way to mitigate the challenges of limited mobility:

Donna (P02): “We're getting so old and feeble, it's harder for us to do that, that's why [we garden] in the [Earth]Box®.”

Carol (P08): “Neither one of us [she and her husband] is able to do it now. So, these little ones [container gardens] work out fine for us.”

Gretta (P03): “I put it on the porch, I had got beans in it, I enjoyed them, but I put lettuce in it. That's my favorite thing in the garden, is lettuce. And that's what I like about the [Earth]Box®, I can do it on my porch, and I don't have to walk far, and I can sit down. So, it means a lot to have it.”

Category 1B. Past Home Food Production Experiences

All EBP participants had previous HFP experiences, including farming, gardening, food preservation, and scratch cooking. Most individuals explained their knowledge of food production based on how they were raised:

Terri (P04): “I was raised on a [dairy] farm, so I know all about gardens and farming.”

Dianne (P05): “I grew up on a farm, so I know a lot about gardening.”

Laura (P13): “Oh, we always had a garden when we were growing up, me and my husband, both our families raised gardens.”

Homer (P08): “We grew up making a garden... We had to work the garden from the time we were five years old until we were twenty-five.”

Donna (P02): “My daddy was a farmer, but he worked on a farm for other people... we raised our own garden, we had our own cows, we had our own chickens, and we killed our own hog... we raised pumpkins, we made apple butter, we made molasses.”

Others placed importance on food preservation:

Virginia (P07): “Yeah, we used to raise a garden, can, can all summer long, and then you had it, all these cans during the wintertime.”

Henry (P02): “We buried our apples and stuff. And then you went to them over winter time, covered them up with hay or that straw, and you had a certain place like a door or a piece of plywood, use it for instance, but it's made like a door. And you cover that straw up with dirt, and they'd be in there when the spring come.”

Some participants specified a level of subsistence agriculture:

Kathy (P06): “We just lived out of a garden all summer.”

Henry (P02): “We raised our own hogs... They sold the hams to buy their sugar and coffee... We had our own chickens, we had our own eggs. Which, that's all we bought, just a little sugar and coffee. The grain, we had it... we thrashed our own.”

In all, most participants had gardened throughout their lifetime:

Dianne (P05): “Almost every place that I have lived, I've had a garden.”

Henry (P02): “We've had a garden all our lives.”

Gretta (P03): “I had a garden all my life.”

Michelle (P14): “I've worked in the garden all my life.”

Kathy (P06): “She's [Liza, the interviewer] talking to two old women [referencing herself and Virginia, P07] that's had a garden all their lives.”

Category 1C. Curious about Home Food Production Options

While it could be argued that the act of applying for a container garden would code this category, 11 of the 14 participant units specifically indicated that curiosity around alternative HFP avenues inspired their participation in the EBP. Both Gloria (P01) and Ada (P09) perfectly summed up all three of the motivations in the following passages:

Gloria (P01): "I did have a background as a child in one form of farming-gardening, farming, producing, whatever you want to call it. As an adult, I learned about, not commercial, but supplemental income farming. And now as I am getting older, I am going back to learning, with your help, about container gardening and raised beds, because I have arthritis and a bad back... I do not know that much about above-ground gardening, and it [the EBP] came in just the right point in my life."

Ada (P09): "Curiosity maybe killed the cat, but I wanted to know what I could grow in it [the EarthBox®] that would be good, and I thought, 'well, you know, I'm getting older, I've got arthritis, I need to know this. Could I still grow something, and it grow good in a container on the carport?' ...I wanted to find out, what can you grow in the EarthBox®, how well will it do, how they perform, what can I grow, and where."

Emergent Theme 2: Meanings and Existing Values Connected to Home Food Production

The goal of the EBP was to “to empower food-insecure families to grow some of their own food and to increase their intake of nutritious, fresh and locally-grown fruits and vegetables; and to understand the health benefit and significance of a diet that includes fresh local produce” (Grayson LandCare, Inc., AFP CFS Enhancement Grant Proposal, 2014). Interestingly, these are concepts that were already embedded in the value system of most EBP participants. Of the 14 participant units, 7 (50%) were coded for “Self-Sufficiency with HFP,” 13 (93%) for “HFP as a Source of Wellness,” 14 (100%) for “Prefer Fresh, Local, and/or Homegrown Foods,” 7 (50%) for “Environmental and Health Concerns” (*Table 8*).

While the abovementioned four categories related to individual perceptions of home gardening, also of note were the categories related to community networks and values around

HFP. Thirteen (93%) were coded for “Family Support Network,” 11 (79%) for “Community HFP Network,” 14 (100%) for “Food Gifting and Lifetime Reciprocity,” and 11 (79%) for “HFP is a Community Asset” (Table 8). All eight categories within ET2 are important to consider independently; however, keeping within the scope of a master’s thesis, many are explored in tandem with others.

Categories 2A. Self-Sufficiency with Home Food Production and 2B. Home Food Production as a Source of Wellness

Most participant units indicated HFP as therapeutic, empowering, and/or healthy, and many participants have maintained a long-term love of gardening throughout their lives. Many participants spoke fondly of being in the garden, whether feeling the dirt or simply watching plants grow:

Gloria (P01): “I like the feel of dirt between my toes... It's very therapeutic to have it in your hands. I love to see things grow. It just makes me happy.”

Gretta (P03): “I love to garden, I love to see things grow.”

Terri (P04): “The peace and the quite, just by yourself working in it, thinking, talking to God, playing in the dirt... Just, you know, it's just calming, it helps you.”

Kathy (P06): “When I did raise a garden, I enjoyed planting it and watching things grow.”

Carl (P12): “[I've enjoyed] watching the plants grow, knowing that you've grown something... I get a thrill out of how big they can get, you know, how much you can get off them.”

Dianne (P05): “Why, I always liked to garden. I mean the vegetables... you would get a feeling that you helped do this... When you have a garden that you can

actually work in the dirt and get down on your hands and knees and really dig... It's rewarding to see how things can grow... I don't care what it is, I just love to see them grow. I just love to see things grow."

Empowerment through HFP often stemmed from pride in self-reliance, an ability to survive, and a sense of security in times of hardship:

Ada (P09): "Even if you lost your job, you could still eat. Those cans and that garden, you won't go hungry."

Dianne (P05): "It's just amazing that you've always got something to eat... You've always got something that you can eat without worry about not having nothing to eat."

Terri (P04): "We picked a lot... by hand, did a lot of canning... I can survive when the electric's out. Cause, I've lived in a lot of homes that had oil lamps and no bathrooms, so when our lights are out, I've got oil lamps, I've got water, and I've got a wood stove, so I can survive."

While the container gardens were unable to offer the volume of food that past HFP experiences did, the EBP was still appreciated:

Gloria (P01): "It's not a survival food source, but it's fun, and it adds to other things."

Carl (P12): "Important in terms of food? No. Important in terms of having plants around and feeling like I'm doing something positive? Yes!"

Carol (P08): "It's not a very big one, but... I'm tickled to death with that EarthBox®."

Categories 2C. Prefer Fresh, Local, and/or Homegrown Foods and 2D. Environmental and Health Concerns

All participants were coded for “Prefer Fresh, Local, and/or Homegrown Foods,” and an appreciation for the taste of this produce led many to make purchases at roadside stands and farmers markets. Concerns around agricultural chemicals and food additives lead many participants to value knowing the origins of their food, further influencing their participation in local markets. Gardening was also seen as a source of healthy, organic produce. Many specifically used the word “fresh” to describe their preference of homegrown and/or local foods:

Gloria (P01): “I like to eat good food... It was so nice to have some fresh good homegrown potatoes... I don't buy store potatoes, because I don't like the way they taste, when you raised them for years.”

Donna (P02): “Fresh vegetables are just automatically better tasting.”

Gretta (P03): “Fresh stuff's always 100% better.”

Laura (P13): “I like to have fresh food.”

Often, participants felt uncomfortable purchasing foods without knowing where they were grown or how they were processed:

Laura (P13): “You know what's in it when you grow it yourself.”

Donna (P02): “We love to buy the locally grown food... If it's not locally grown and you buy it from away from here, you really don't know [what chemicals are used]... they [local farmers] don't use as much chemicals on them as they do away from here.”

Henry (P02): “You won't be going to the doctor as much if you'll eat organic food. Now, anybody knows that. Or should know it anyway... You've read up on these sprays, what it does, you know. Now it's dangerous. It's no wonder these people are eaten up with cancer.”

Terri (P04): "You know what's in it... you don't have to pick up a can and read it to see if it's got too much salt... Or too many unknown ingredients."

Dianne (P05): "Not the store stuff! Homegrown stuff. I mean, it's more nutritious for you, too. You don't have all those preservatives and additives."

While only 7 of the participant units (50%) had visited the IFM, many participated in the local food system by visiting other markets or informal roadside stands:

Terri (P04): "I've not been to the Independence market or any of those kind. Maybe if we're riding down the road or something and we see somebody selling vegetables and we think we want some of it, we'll stop and get it."

Ada (P09): "The produce stands... we have to go further to those, but I will for fresher, more local vegetables... One's an hour away, but I'll go."

Another interesting finding fueling environmental and health concerns among participants was the predominance of tree farming in the area:

Gloria (P01): "They're growing right after they cut the Christmas trees and they're growing them on poison land... because those are some really nasty chemicals."

Henry (P02): "I'd rather have something to eat growing out there than them trees... some of them use some bad stuff. You see them in them white suits in the field; mask is on. You don't want to spray your vegetables and stuff with that."

Terri (P04): "That spray junk, but they say it won't hurt you... I don't agree with them... If I had a million dollars and a million acres, they wouldn't be planted in pine trees... They just ruin it [the land], really. It isn't good for a garden."

Angela (P10): "Tree farms, I'm not for them because if they spray, you see dead animals after that... It gets into the water system. And you see a lot of men that work in the tree farms; they get cancers. So, I am not a tree farm supporter."

Categories 2E. Family Support Network, 2F. Community Home Food Production Network, and 2G. Food Gifting and Lifetime Reciprocity

Every participant interview was coded for "Food Gifting and Lifetime Reciprocity," and all except one spoke of sharing garden produce with family members. Growing extra produce could be intended or unintentional:

Donna (P02): "The kids come home and help us plant them and grow enough potatoes so... [our family] can all share the potatoes."

Michelle (P14): "All the family did, if somebody had too much, they'd share with the rest of the family."

Community reciprocity was often spoke of as neighbor helping neighbor:

Carol (P08): "The preacher and his wife that lives right down the road. They usually have a pretty good sized garden and she's always sending me something."

Gretta (P03): "I had a guy come and plow it [the garden]. He lives down below us... He plows several people's [gardens] around [here]. He never did charge me anything to do mine. He always did mine for free."

Donna (P02): "Our neighbor brings us things, and, if we have extra, we take things to them."

Terri (P04): "Yeah, we all share... She [neighbor] gave me some last year, and gave me a couple this year cause I didn't have a garden."

Henry (P02): "That's about the way it is around here. And our neighbors, if they don't have something, we give it to them, you know. Share, share, alike... That's the way it's supposed to be."

Category 2H. Home Food Production is a Community Asset

Many valued home gardening as a healthy lifestyle and an important part of the rural landscape. Therefore, having the knowledge to grow a garden, preserve produce, and prepare homegrown foods were important skills to maintain and pass down to younger generations:

Terri (P04): "I think it'd be good if more people had gardens, especially younger people, [to] learn how to do it. Because there won't be [anybody] to carry it on after us."

Dianne (P05): "It's [the EBP] educational for the children, and I think it's good to let them see how vegetables... grow."

Henry (P02): "The growing boxes are great. It gives the young people that have never had the experience to show them how to do it... I think it's a great thing."

Some emphasized their perception of gardening as a rural characteristic, either by comparing to urban landscapes or by highlighting the ubiquitous nature of HFP in the region:

Henry (P02): "Need to bring them [young people] out and let them raise their own stuff... Some of them have never been off of concrete or pavement, and they'd starve to death... I mean, you can't live without something to eat... And in the city, I'd say you've got to have them [container gardens]."

Dianne (P05): "I'm sure city kids think the only way you get a vegetable is to go to the store and buy them in a can."

Gloria (P01): "It's pretty common around Grayson County for people to do survival, substance farming."

Gardens were equated with food, and more HFP in Grayson County was seen as a positive:

Ada (P09): "Anywhere there's gardens, there's going to be more food for people."

Michelle (P14): "It'd help people be healthier. That way they'd have more vegetables and stuff handy, and they would eat more vegetables."

Emergent Theme 3: Impacts of Home Food Production and EarthBox® Program Participation

As stated in the original AFP grant proposal, the EBP was organized to make “healthy local food” more attainable, improve the nutritional status of MFP clients, as well as inspire self-reliance and self-efficacy through HFP (Grayson LandCare, Inc., AFP CFS Enhancement Grant Proposal, 2014). Results revealed impacts of EBP participation stemmed from previous HFP experiences, a category which all participant units were coded. Participants valued the EBP as providing alternative and feasible modes to continue gardening, fueling the existing impetus around HFP. Twelve (86%) were coded for “Consume More Produce During Growing Season,” 14 (100%) for “HFP Saves Money,” and 12 (86%) for “Interest in Future HFP” (Table 8). The first two categories are presented together as participants often coupled them in the interviews.

Categories 3A. Consume More Produce During the Growing Season and 3B. Home Food Production Saves Money

All participants stated a preference for fresh, local, or homegrown foods; most also claimed to consume more produce during the growing season. The abundance of “free” fresh produce, obtained either through the convenience of a home garden or from gifting, shaped participants’ diets in the summertime. One participant (Carl, P12) indicated his diet was unaffected in the growing season because he was able to purchase produce at grocery stores year round.

When expanding upon ET4, challenges were often found to hinder participant’s access to various foods. Importantly, the household food environment was altered by increased access to fresh produce when participants were gardening:

Donna (P02): “In the wintertime, you either got it frozen or you've got it canned. So, you don't eat as much of it as you do when it's fresh, and you can gather it and eat it.”

Ada (P09): “Yeah, it's more readily available, fresh produce... If it's growing in the garden... I'm going to go get it right then.”

Michelle (P14): “Yeah, I eat a lot more vegetables... Because you have a lot more coming out of the garden and... you have it on hand.”

All participant interviews were coded for “HFP Saves Money” and often coupled this with category 3A (increased access to fresh produce through home gardens), reinforcing that household economics are part of the food environment and influence food choices. The convenience of homegrown produce was valued for reducing trips to the store, and saving time and money on grocery bills:

Gretta (P03): “It's handy when you've got it yourself and not having to go buy it.”

Ada (P09): "It's helps with the grocery bill."

Henry (P02): "You'll save 50 percent, easy, on vegetables. You go buy them out of the grocery store, they're high."

Terri (P04): "It [the garden] helped with the groceries... [Providing] a lot more fresh vegetables, cause they're so expensive to buy."

Michelle (P14): "It seems like everybody around here is having a hard time making ends-meet anymore. And if they did a lot more gardening, it saves money."

While most felt the containers added more to their personal wellbeing than diet, Dianne, a single guardian raising two grandchildren on a low income, felt a specific economic impact:

Dianne (P05): "It's [the EarthBox®] helped me out sometimes when I just didn't have maybe a little extra funds to get an extra can of something, I could get that instead of using the cans I have in the cabinet... It's been essential."

Category 3C. Interest in Future Home Food Production

Values connected to past HFP experiences gave present gardening activities significance and influenced participation in the EBP. While a general interest in HFP already existed, the concept of food gardening in containers was new, and many participants were inspired to expand gardening efforts beyond EBP containers:

Michelle (P14): "I thought about maybe trying some raised beds... a few people around here has started doing that a little bit... I'm just hearing people saying that they did good. So, I thought sometime, I might try that."

Gloria (P01): "It [gardening in containers] was fun, and I'm going to do it again... I've been reading about tires. Growing potatoes in tires... I want to try tires next year."

Many wanted to continue gardening, whether in the ground, in containers, or other not-yet-discovered avenues, and some indicated the potential for future animal husbandry:

Gloria (P01): "I'm looking at beef. Maybe get them in the spring when I retire, bottle feed them and sell them in the fall."

Carl (P12): "If we got chickens, well, that's food! Eggs and chicken... I would slaughter them, I don't have a problem with it."

Emergent Theme 4: Home Food Production and Food Access Challenges

Clients of the western Grayson County MFP were considered food insecure based on the fact that they took personal action to obtain free food; however, it was unclear why food insecurity existed in the first place. A portion of this study was designed to learn what challenges residents experienced around EBP participation as well as food access and HFP in general. Thirteen (93%) participant units were coded for "Geographic Access in Rural Areas," 12 (86%) for "Household and Community Economics," and 10 (71%) for "Barriers to HFP" (Table 8). The first two categories are presented together as these challenges often intersected for participants with economics exacerbating difficulties common in other rural areas in the United States. The last category is presented independent of the other two as it is specific to HFP and informed the solutions collected in ET5.

Categories 4A. Geographic Access in Rural Areas and 4B. Household and Community Economics

Implicit to understanding the persistence of food insecurity in any community, household food environment inclusive of household economics and food access must be critically explored. In rural areas where grocery stores are even more widely distributed, issues related to

transportation must be taken into account. In reference to household finances, demographic information revealed 8 (57%) participant units had social security benefits as their main source of income. Beyond the act of participating in the MFP, shopping for groceries on sale indicated food budget constraints:

Terri (P04): "He [her husband] watches for sales... if he sees something like soup on sale, he'll get several cans."

Laura (P13): "Sometimes I'll look at the sale paper... You can watch the sales and see who's having the best sale for what you need and go there."

Two participants were enrolled in SNAP, and Dianne indicated her dependence on the benefits:

Dianne (P05): "Thank God for SNAP. Shew, I don't know if I could ever make it if it wasn't for SNAP."

Regardless of income, most indicated long-distance travel to grocery stores, medical centers, and, as a result of the poor local job market, places of work. Lengthy commutes increased the cost of living for many, further straining already low incomes, especially for those raising children alone. Overall, transportation was highlighted as a challenge across the Grayson County community:

Dianne (P05): "A lot of people, they just don't have gas money or maybe they don't have the transportation to get to a different store."

Carol (P08): "With me being diabetic, I need vegetables, a lot of them... and I, I can't get them without going all the way to Marion [an 18-mile/30-minute drive]."

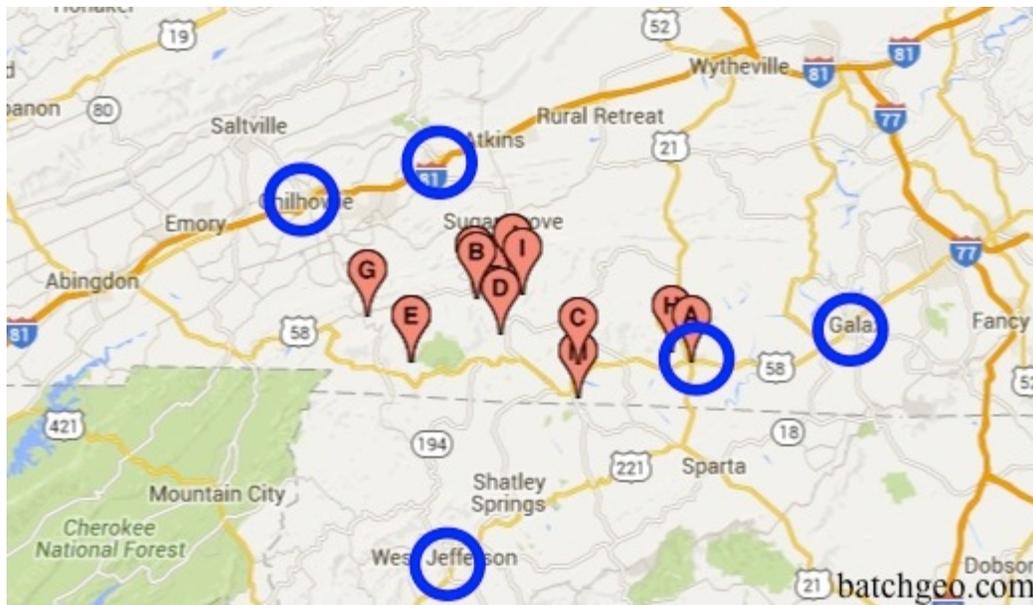
Ada (P09): "Yeah, we have to travel a good ways, you know. And I don't like that, but it's worth it to live, you know, a rural life."

Terri (P04): “We're in a 25-mile hub of everywhere there is around here... we're real rural.”

Gretta (P03): “It takes you about 45 minutes [to drive to Wal-Mart or Food City in Marion], if you don't break a speed limit.”

From the interview data, the closest grocery store for most was found to be between 12 and 30 miles or 15 and 45 minutes. Only two participants indicated a 5-minute drive to the Food City in Independence yet still preferred to travel to Galax for better quality produce. The spatial distribution of EBP participant’s homes and their preferred grocery stores are shown in *Figure 7*.

Figure 7. EBP Participant Homes (Red Balloons) and Grocery Store Locations (Blue Circles)



Category 4C. Barriers to Home Food Production

The EBP was designed to mitigate existing barriers to HFP, including limited access to land and mobility. These and other challenges were discovered through participant interviews. Eleven participants were coded for “Limited Mobility,” a category discussed under ET1. Limited finances and expensive gardening supplies coupled with time constraints and the unpredictability of food gardening rendered the activity to “a gamble”:

Gretta (P03): “[A garden] doesn’t benefit you no more. Everything is so high, it costs you so much to put one out...The seeds, and the fertilizer, and everything's so high, that if you don't get much of it, it don't pay you to do it... Unless you have a real good garden spot, it don't pay you... it's [seeds and starts] expensive. And the fertilizer's expensive, too.”

Terri (P04): “The seeds are expensive anymore, but in the long run, if they do good, you save money, but if you get a bad set of seeds or some that don't want to grow good, you loose money.”

Gloria (P01): “Dirt is expensive to buy...I can't afford to buy more [potato growing] sacks. They're expensive; I checked them out on the Internet.” “One year... you're broccoli does really good, and the next year, it won't go at all, but your green peppers do good... It's a gamble. Farmers are the biggest gamblers in the world.”

Referencing challenges related to land access, two interviewees spoke about land condemnation by the Forest Service. Gretta (P03) indicated the land around where she grew up was “taken” and houses were torn down, and Ada revealed her family land was condemned and acquired in 1966:

Ada (P09): “The, the park, Grayson Highland Park took our land... They took a lot of land that they never did develop. Ours was some of it.... Out of... 56 or 58 acres, he [her father] didn't get enough back to buy 4 acres and this house... [he was] evicted.”

Emergent Theme 5: Solutions to Gardening Challenges and Emergent Theme 6: Low Food Access

The initial codes from ET5 and ET6 were consolidated directly from participant interviews as categories so, in accordance with the research philosophy, all participant-indicated solutions could be presented equally to EBP organizers. *Table 9* describes solutions to gardening challenges the participants identified, including free and/or low-cost gardening supplies, alternative HFP education, and support with manual labor. Additionally, many participants preferred the EarthBox®s over other containers for reasons indicated in *Table 9*:

Ada (P09): “The EarthBox® is the way to go... the way the shape, the square, you can plant more... the longer is better”

Donna (P02): “It [the EarthBox® watering system] keeps moisture underneath there all the time... When you're doing something in the bucket... And the foil pan, you're watering everything from the top, so the grow boxes are the best idea.”

Henry (P02): “We thought about just buying about 10 [EarthBox®s].”

Gretta (P03): “I'm just glad that I've got it [the EarthBox®]. I wouldn't mind having another one to set on the porch (laughing).”

Table 9. Categories for Emergent Themes 5 and 6

Categories for Emergent Theme 5: Solutions to Gardening Challenges				
Free and/or Low-cost Gardening Supplies		Alternative HFP Education	Support with Manual Labor	Additional EarthBox®s
Seeds	Lumber	Workshops	Tilling	Wheels Help with Limited Mobility
Labeled Starts	Containers	Low-cost Gardening Options	Putting up a Fence	Watering System Works Well
Soil	Perennial Food Plants	Gardening Club	Constructing Raised Beds	Wide for More Plants
Fertilizer	Tubes for Watering System	Alternative Gardening Options	Spring and Fall Garden Preparation	
Fencing Materials	Community Seed Swaps		Volunteer Groups to Help with Manual Labor	
Categories for Emergent Theme 6: Solutions to Low Food Access				
Closer Affordable Food Options	Alternative IFM Hours	Local Produce Available in Stores	Nutritionally Adequate and Safe Food Items	Bulk Local Produce at Lower Cost

Also shown in *Table 9* were the solutions participants offered to low food access. Ada described her vision for locally grown produce to be available in grocery stores and restaurants:

Ada (P09): "I think it's crazy that a supermarket chain doesn't buy locally... If it's growing in the community, it just makes sense... If the farmers have it for sale, yeah, they should buy it... If there's an organic farm, they can go and have a contract with a supermarket chain, locally, or restaurants. Just makes sense, doesn't it?"

Some participants expressed concerns regarding the nutritional adequacy and quality of available foods, either through the MFP or the Food City in Independence:

Henry (P02): "That food they bring in over at the school house [through the MFP], I don't know where it comes from, but half of it's rotten... And some of the other stuff was busted, been handled rough... Sometimes you go, potatoes and stuff is good... Next time you go, they're ruined."

Donna (P02): "The vegetables and fruits [from the MFP] are spoiled before they get to us... But, there's a lot of the food that you can use."

Hannah (P11): "It's [the Independence Food City produce] bad... You'd be lucky if the produce isn't already bad... Sometimes... you'll go through stuff, and it's like actually needing to be thrown away, "science experiment" ... And some of their stuff is moldy... You've got to check them over really well before you buy them."

Carl (P12): "The produce selection in Food City in Galax is amazingly better than here... What we get here in Independence, I would consider seconds compared to Food City in Galax. It's like, they pick what they want and they send the rest over here."

While some participants preferred to purchase groceries in larger stores, Gloria expressed her appreciation for the local Food City while also reiterating the challenges of long-distance travel:

Gloria (P01): "Food City's good, it's local... Prices are good... it's 14 miles from home. I'm in Galax all of the time because of my work. I don't usually buy groceries there because of the travel time... So, it's just where it is. We only have one store to choose from here. There's a lot of people who go to Galax or go to Sparta for some bigger stores, but Food City has all the basics, that's all I need."

Dianne discussed many of her challenges as an older single guardian of two grandchildren and expressed great appreciation for the MFP distribution:

Dianne (P05): "I'd like to get back [to gardening], but I can't. Like I said, my health won't let me. And having two kids to raise, and starting all over when you're not used to having no children at all, and all of a sudden, impact and, bam, you've got these two little children to take care of... When they started the [MFP] food box up at the school, it was, I mean, those food boxes are a blessing. When I don't get to go up there to get my food box, I do, I feel kind of down... Usually, in a Wal-Mart bag, they've got bananas... I've gotten lemons, limes, tomatoes, and different things in that bag. And when you get them home and get them out of that bag, you say, 'Hey, look! We've got something else, not just...' The [MFP] food boxes, to me, are great."

Participant Suggestions for EarthBox® Program and Independence Farmers Market Improvement

In addition to providing individual and community-specific solutions to gardening challenges and low-food access, participants also gave suggestions for EBP and IFM improvement as noted in *Table 10*. Some suggestions were offered through brainstorming sessions and some organically appeared throughout the interview. All ideas were aggregated from participant interviews to be shared with the EBP organizers.

Table 10. Participant Suggestions for EBP and IMF Improvement

Participant Suggestions	
EarthBox® Program	Independence Farmers Market
Grow High-Dollar Crops in Containers	Advertise
Seek Donations for Gardening Supplies	Market Structure
Use Community Centers/Hubs for Gardening Awareness/Outreach	Higher Volume of Product
Partner with the Canning Factory in Hillsville	Transportation to IFM
Increase Food Production with Raised Beds for Able-bodied Folks	Additional Vendors
Containers for Elderly, New Gardeners, Time/Space Constraints, Mental Health	Education on SNAP Doubling Program

To remain authentic to the research philosophy guiding this study, participants were given a voice in EBP-specific program guidance. The main recommendations regarded the use of the containers for food production. Twelve out of 14 (86%) households indicated success with their EarthBox®, and half (n=7) had various levels of success growing in the other containers: 2 successful with potatoes grown in buckets (3 unsuccessful); 1 successful with potatoes grown in Wood Prairie Farm Smart Bags (1 unsuccessful); 3 successful with other vegetables grown in buckets (1 unsuccessful); 3 successful with other vegetables grown in pans (1 unsuccessful); and 4 did not use other containers.

One suggestion shown in *Table 10* was growing high-dollar crops, such as tomatoes and lettuce, in containers for economic efficiency. Others hinted that it might not be worth the time, money, and effort to grow potatoes in containers since potatoes store well and are inexpensive at the grocery store. Further, many participants indicated that the container gardening was a great

fit for the elderly and those with time and/or space constraints who simply loved to garden. Container gardening was also purported an avenue to educate new gardeners and young people about tending food plants. Many gardeners also expressed that offering assistance with raised bed gardening could encourage food production for able-bodied people, thereby impacting community food security:

Gloria (P01): "I think for massive food production for a household, big raised beds... I think that way, you would probably produce more food than the little containers... For apartment people... for people on walkers, their little containers are really cool, because it lets them do something on many levels. But for actual volume of production, you don't get much. So a combination [of offering raised beds and container gardens] would probably be very good."

Referencing the IFM, long-distance travel was a reoccurring obstacle as some reported up to an hour of driving to reach Independence from their home. Another complication revolved around the current hours of operation for the county market:

Carl (P12): "They're [the IFM] not exactly open during conducive hours for somebody who works a 9-to-5 job. And so, you either have to have somebody go for you or take a day off work."

Michelle (P14): "It's [the IFM] a good thing to go whenever you have a chance to go while they're open... Because where we're so far away... If it was open like on a Saturday and have it a little later."

Gloria (P01): "Friday morning is nice. The only reason I go is because I can incorporate it into my work, which is very rare for most people, but I work in the community... But most people around here work in a factory; they can't get there... A

weekend hour would be really nice... Maybe not crack of dawn Saturday, like 10 to 2, or something.”

Outreach about gardening and the IFM was mentioned by several participants. Since a goal of the EBP was to increase SNAP participation at the IFM, it is important to note that at least one of the two SNAP-enrolled interviewees was unaware of the benefits-doubling program:

Dianne (P05): “Somebody said, because I get food stamps, that you could take your food stamps and use those, you could turn them in, and for every one dollar, you get two dollars, or something. I, I can't compute that... I just didn't understand how to do it [use the SNAP benefits-doubling program], so I never [attended the IFM], but maybe this year, now that I know how it works, starting this spring... I'll start going there.”

CHAPTER 5: DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

There is a substantial gap in research around home gardens in rural areas in the United States. August scholars have called for supplemental qualitative research to determine the extent to which home food production relates to household and community food security (Kortright & Wakefield, 2011; Schupp & Sharp, 2012; Taylor & Lovell, 2014). Further, Gray et al. (2014) determine there is a need for research in industrialized countries to determine whether “[home] gardens can scale up to have broader effects on household and community relationships... becom[ing] more than the sum of their parts [and] resulting in forces for broader social change, cultural preservation and self-determination” (p. 188). These calls were addressed through an investigation of the EBP while also leaving potential for future work. Designed to generate impetus for engagement in civic agriculture including HFP, the EBP was anticipated to increase community food security, impact nutritional status of residents, and cultivate relationships within Grayson County’s local food system.

Goals of the EBP collaborators included addressing food security, food accessibility, and health through home gardening in rural western Grayson County and increasing SNAP participation at the Independence Farmers Market (IFM). Collaborators theorized that grant allocation to support home food gardening would empower households who identified as food-insecure to provide fresh vegetables for themselves, which would build a level of self-determination to address their individual food security. Further, collaborators hypothesized home gardening would help participants gain a new appreciation for local farming operations,

which would encourage them to attend the county farmers' market and participate in the local food system.

This research further investigated if the EBP acted, as the collaborators theorized, as a springboard for further agricultural activities to impact community food security, food choices of individuals, and the local food system. With the guiding philosophy of prioritizing participants' voices, case study findings were understood within the "real-life" context that was developed through ethnographic, historic, and observational investigations. Using a community-engaged research lens, input from EBP organizers, key informants, and interviewees was used to design and achieve the following original objectives:

- 1) Identify similarities and differences between participant motivations/goals and the EBP collaborators' motivations/goals
- 2) Determine key findings about if, how, and why the participants value engagement in the EBP
- 3) Explore the experience of and impacts on participants, and recommend future actions to improve the EBP
- 4) Record what solutions to food access participants propose, and recommend future actions to improve local food accessibility in Grayson County

The following sections move through each component of these original objectives to discuss the findings.

Participant and Organizer Motivations

This research validated why EBP organizers decided to distribute container gardens over in-ground gardening support. For participants, limited mobility and access to land often

hindered engagement in HFP. Barriers to gardening have been discussed in the literature including health conditions, perceived resources of time, space, and money, as well as interest and knowledge in food production (Gladwin & Butler, 1982; Kortright & Wakefield, 2011; Quandt et al., 1994; Shupp & Sharp, 2012; Taylor & Lovell, 2014; Winne, 2008). Beyond mobility and physical garden space, this study also revealed other “Barriers to HFP,” including expensive gardening resources and time constraints. Thus, offering free container gardens to those unable to garden or who foresaw future limitations to gardening mitigated almost all the challenges found in this and these other studies.

All interviewees having past HFP experiences was a substantial finding. It can be postulated that the 2014 EBP application process targeted those who were already interested and knowledgeable in gardening, which has been found to be a barrier to HFP in previous work by other researchers. Based on this case study and the successes of the EBP, it is recommended that future HFP initiatives begin by conducting a preliminary inquiry to discover community-specific needs and barriers, similar to conclusions offered by Taylor and Lovell (2014). Then program design can be grounded within the context of the target population, and an application process can direct resources more efficiently by allowing individuals to self-identify interest.

Valuing Container Gardening as a Continuation of Home Food Production Endeavors

When asked about what was valued in EBP engagement, participants often used stories from the past to explain why gardening was important to them. The meaning and value of gardening emerged through participants reminiscing about past HFP experiences. When the focus of the conversation returned to the containers, participants often maintained that, regardless of how small these gardens were, they tapped this existing meaning and value system. Drawing

upon the concept of indexical signs from semiotic theory, the relevance of these subjective meanings and values is justified through an objective perspective.

Semiotic theory is the study of signs and the meaning that is made of them (Ahern, 2012; Gumperz & Hymes, 1972; Mertz & Parmentier, 1985). Indexicals are a type of sign, often explained as, like an index finger, “pointing to” something else within the mind of the subject. That something else could be a tangible object or even a more abstract concept, such as cultural norms or personal meanings, feelings, and values (Puckett, 2005). Indexicals, or “learned associations” (Puckett, 2005), relate to this “something else” through iterative co-occurrence in a specific context. A traditional example of an indexical is how smoke is often a sign for fire. Whether or not fire exists in the exact moment that smoke is perceived, fire is interpreted when smoke appears because they have been repetitively perceived in the same moments of time and space. Participation in various EBP activities (planting, watering, harvesting, cooking, visiting the IFM, etc.) mimicked, to a degree, other forms of HFP and, therefore, evoked similar responses. As the system of meanings and values was generated through previous experiences and container gardening is considered a type of HFP, components of the EBP are understood as indexical signs for the 8 categories within ET2, “Meanings and Existing Values Connected to HFP.”

The motivations, meanings, and values found around container gardening paralleled most of those found the literature around gardening, in general. Food production for personal consumption, recreation, access to fresh produce, educational purposes, and cultural reasons have all been found to encourage gardening practices (Gladwin & Butler, 1982; Kortright & Wakefield, 2011; Shupp & Sharp, 2012; Winne, 2008). When discussing past HFP experiences, EBP participants spoke of subsistence agriculture, personal enjoyment, preferences for fresh

produce, and the importance of gardening knowledge, which also explained why many were coded for “Interest in Future HFP.” Researchers (Kortright & Wakefield, 2011; Schupp & Sharp, 2012) also reported interest in engaging with local, sustainable food systems as having influence on the decision to engage in home food production, and all participants were coded for “Prefer Fresh, Local, and/or Homegrown Foods.” Contrary to the literature, this value instilled in container gardening was developed through past gardening experiences, meaning that interest in local food system participation was cultivated through gardening, rather than being a motivation to garden. With EBP goals of IFM engagement and self-empowerment through home gardening, it was surprising to find that the impetus for HFP and the interest in local food systems already existed within this population.

Another unexpected finding revolved around participant perspectives of tree farming, which comprises only about 10% of the total market value of agricultural products sold in Grayson County. While still only a relatively small component of the local economy, it seems Christmas tree production is becoming a prominent component of the landscape as it ranked third in total market value, after livestock and livestock products, and comprised over half of the market value of crops sold in the county (USDA Census of Agriculture, 2012). EBP participants highlighted these tree farms, over other more prominent forms of agriculture, as sources of pollution and local job loss. Non-local migrant laborers were observed but notably not blamed for their participation in tree farming; rather participants raised concerns about those, local or non-local, which owned and operated the farms.

For interviewees, agricultural sprays and chemicals were seemingly related to wild and domestic animal death as well as perceived rises in cancer diagnosis. Some even indicated that tree farms “ruined” the land for potential food production, wishing vegetables and fruits would

instead pervade the countryside. While Donna and Henry (P02) did participate in tree farming at one time, they still maintained a fairly concerned view on the practice. Henry reiterated his environmental concerns, “*polluting this water... is the worst thing that's ever happened to this country,*” linking agricultural chemicals, environmental pollution, and cancer, the latter of which he’d been personally fighting over the past year. These farms evoked strong enough concerns that those living in close proximity to tree operations were hesitant to use their land for HFP. Clearly, food production in Grayson County was not only impacted by cropland displacement. Anxieties around the potential environmental and health impacts of tree farms also thwarted the existing impetus for in-ground gardening, and container food production gave ease to apprehensions of gardening in contaminated soil.

Through past experiences, interviewees already perceived gardening as having an impact on their diet, finances, and wellbeing. Most participants indicated they consumed more produce during the growing season, and this type of seasonal eating has been confirmed in other studies of rural and agriculture-based populations (Quandt et al., 2001a). As people were used to “annual cycles of scarcity and plenty” (Quandt et al., 2001b, p. 366), gardening was associated with abundance and there was no need for “belt-tightening actions” (Quandt & Rao, 1999, p. 30) with respect to fresh produce. Other researchers have reported how seasonal access to community, friends, family members, or personal gardens correlate to increased consumption of fruits and vegetables (Alaimo, Packnett, Miles, & Kruger; 2008; Litt et al., 2015; Morton et al., 2008). Such benefits of increased access and consumption of produce from gardens are often revealed in studies on urban areas and could become amplified in rural areas, as grocery stores selling fresh produce can be even farther away from the household.

As all participants were coded for “HFP Saves Money” and many coded for challenges related to “Household and Community Economics,” findings paralleled how home gardening has been used in time of economic hardship to increase access to food and save money (Andress & Clark, 2015; Bassett, 1981; Gladwin & Butler; 1982; Niñez, 1987). With respect to local food system engagement, Winnie (2008) has discussed how financial constraints and limited food access can reduce discourse around local and/or organic food in low-income communities, but warns that this does not accurately reflect interest in or inclination to purchasing such foods (p. 128). When considering the importance of home gardening through the lens of food security, it must be recognized that the values EBP organizers hoped to instill in participants were already there, but various obstacles (limited mobility, expensive gardening resources, time constraints, and contaminated soil) hindered exercising those values. With recommendations similar to Wyker, Jordan, and Quigley’s (2012) work on consumer behavior of SNAP enrollees, programmatic focuses should be shifted from shaping participant perceptions toward addressing community-identified barriers to healthy food behavior.

Researchers have discussed existing networks of food sharing that further increase access to produce in rural areas (Quandt et al., 1994; Quandt et al., 2001a; Morton et al., 2008). Winnie (2008) references a 2001 study that found low-income families with high participation in social networks were more likely to be food secure (p. 168). Quandt et al. (2001a) even reported a theme on food sharing among older rural adults called “sharing food helps prevent hunger” (p. 155). Similarly, many participant interviewees who were coded for “Food Gifting and Lifetime Reciprocity” discussed producing, distributing, or even redistributing food specifically to those who “needed it.” In this way, food sharing, like gardening, can be seen as another piece of the food security safety net for those in Grayson County. Echoing the literature, it becomes evident

that food-sharing networks should be taken into consideration when considering food security and designing social service programs in rural areas of the United States.

Beyond contributions to food security, food gifting has also been found to offer a social dimension in the lives of rural elders (Quandt et al., 2001a; Quandt et al., 2001b). DeCroix Bane, Rathbone-McCuan, and Galliger (1994) discuss how the out-migration of young people, possibly from diminishing economic opportunities like that seen in Grayson County, have affected the social climate of many rural areas, specifically the formal or informal support systems for the elderly. The geographic and social isolation that can occur in rural areas is further exacerbated for those with low incomes, limited mobility, and restricted transportation options, which diminish community interactions that build crucial social capital through engagement in local social networks (Gray, Shaw, & Farrington, 2006). Quandt et al. (2001a) revealed a theme titled, “Food sharing reflects a sense of community” (p. 154) and discuss how gatherings around food, food gifting, and receiving foods are all “part of the fabric of community life” (p. 157), offering social inclusion to those vulnerable to exclusion.

Activities around food allowed many participants to stay involved in community and family networks, which were two noteworthy categories found in this research. Flora, Flora, and Fey (2004) discuss how successful communities maintain high levels of cultural and social capitals, among others. Community reciprocity and food gifting is an expression of cultural values, and therefore builds cultural capital, within this and similar rural populations. Through this cultural expression, social networks are maintained, and participants feel engaged in their communities. Quandt et al. (2001a) indicates “reinforcement of the idea of community may be particularly important for older adults” (p. 155). Trust and reciprocity have been indicated as the basis of social capital within communities that can lead to material and social benefits, including

transportation, food gifting, and social support. Kingsley and Townsend (2006) discuss how participation in community gardens can grow social connectedness, but these benefits can be limited to the garden setting in urban areas. Since social networks are already established in many rural areas, researchers and practitioners should work to understand food sharing through these networks as having the potential to not only contribute to rural food security, but to also build social capital and provide community inclusion for the rural elderly.

While only 11 of the 14 participant unit interviews were specifically coded “HFP is a Community Asset,” this category could arguably be a culminating code for this research. Past experiences of personal enjoyment, accessibility to fresh produce, and community engagement led many to value home gardening as a healthy lifestyle and an important part of the rural landscape. As food production was once a huge part of many participants’ lives and connected to an established value system, free container gardens were emphasized as a way to mitigate barriers and continue a meaningful practice. Though food security and increased vegetable consumption were minimally impacted through participation in the EBP, cultural insights into how HFP was situated within the lives of this population proves the EBP as a successful community food project.

From the emotional and social benefits described above, the EBP could be a low-cost prototype community-based service with the potential to impact the wellbeing of elders in other rural communities. Kraut (1994) indicated that community-based services in rural areas often lack resources such as money and service infrastructure for such a dispersed population. Also, as working-age residents migrate to urban areas for work, rural areas also experience a shrinking pool of trained labor for specialty staff and potential volunteers. As a result, social services for the rural elderly are often “stretched to the limit” (Quandt & Rao, 1999, p. 34), and some

individuals do not receive the support they may need. As funding allocation is severely restricted in rural areas, DeCroix Bane et al. (1994) describe how community-based services often focus on the limited mobility of elders rather than support their mental or emotional wellbeing.

Quandt et al. (2001b) call for food security programs to fit within the value systems of rural elders, and this study supports that gardening provides “an opportunity for older persons to express cultural values” (Quandt et al., 1994, p. 198). As a result, container gardening programs could also become a culturally appropriate service directed toward the emotional wellbeing of rural elderly with the added dietary benefit of fresh produce. For able-bodied elderly or those with HFP community networks, more extensive gardening support has the potential to expand beyond mental wellbeing to impact nutritional status and community food security. Ada (P09) sums up the importance of container gardening for rural elders in the following passage:

“It is fun. You've got to admit, that to water it, you could sit down in a chair if you want to... I wanted to see how easy it was and, well, how well it worked because, inevitably, I'm going to get to where one day, it's going to be hard to garden or impossible to have a garden. But if you can have an EarthBox®, even if you're really disabled, and you could sit down and watch that grow... I mean, let's face it, when you get elderly... you've got nothing but what time that you're just sitting. It would make life a little bit more pleasant to get to watch something grow, see something growing, or you could still work with it [gardening], maybe, longer.”

As rural areas are experiencing an outmigration of young people and struggling social services, it is recommended that container gardening support offered through the EBP be replicated as a low-cost culturally appropriate mental- and nutritional-health service for the rural

elderly. Targeting those with food production histories, container gardening can allow those with limited mobility to tap their existing value system and engage in a meaningful practice. With an appreciation for local foods already present in Grayson County, this research shifted to indentifying barriers to engagement in the IFM, expanded upon later in this chapter. Based on the findings from this case study, other similar initiatives should begin with appreciative inquiry to uncover existing perceptions, values, assets, and potentials through recognizing the lived experiences of those within a target community (Emery, Fey, & Flora, 2006). Through extensive preliminary investigation, needs and barriers can be acknowledged and community-identified solutions can be implemented through culturally sensitive program development.

Solutions to Low Food Access in Grayson County

In conjunction with how the MFP operated, interview participants were not asked to reveal their income. Collecting information about who received SNAP and social security benefits established a better understanding of participant income as revealed in this study. Two households interviewed, both with single guardians of two children, indicated enrollment in SNAP, which translated for this 3-person household into a gross monthly income of \$2,177 or below, and/or the net monthly income of \$1,675 or below, based on enrollment in other assistance programs (USDA FNS, 2016). Additionally, over half of the participant units indicated social security benefits as their main source of income. For insight on the amount of income this means, the average monthly benefit from social security in June 2015 was \$1,335 for retired workers (Social Security Administration, 2015).

For those who did not indicate receiving SNAP or social security benefits, a lack of full-time employment opportunities and a high cost of living in the county was a prominent topic.

Travel to out-of-county work or unstable income from informal jobs stressed household budgets even more. A few female interviewees once worked stable jobs with textile industries such as Mr. Casuals until the sewing factory closed in the 1990's and many held housekeeping positions at one time. Henry (P02) "*operate[d] and r[a]n equipment*" for work, including helping to build interstate 81, until he retired. Terri (P04) discussed how she took informal babysitting jobs after Mr. Casuals and other factories were outsourced to El Salvador or Mexico. At the time of the interview, Michelle (P14) traveled to West Jefferson, North Carolina for work, a 27-mile/35-minute drive from her home. These findings are validated by 2012 Census Bureau data that found over 80% of working Grayson County residents commute out-of-county for their occupation (Virginia Employment Commission, 2016). Lack of jobs could explain unstable incomes and outmigration of the working class. A decreasing and aging population coupled with low wages and social security benefits provide the context for grocery store closings, and thereby low food-access. Those addressing issue of food security in the region would benefit to consider economic development opportunities to boost sustainable job creation, support a working class, and create an environment where food stores could maintain a viable business.

Limited incomes in Grayson County were further exacerbated by characteristics coded "Geographic Access in Rural Areas," with participants traveling 12-30 miles or 15-45 minutes to their preferred grocery store. These expected findings parallel those of Smith and Morton (2009) and validate the original concerns of organizers who indicated most residents traveled to Marion, Galax, and Wytheville, as well as West Jefferson and Sparta in North Carolina because these stores were bigger, cheaper, and/or closer as well as had more options at higher qualities than smaller, local stores or the Food City in Independence (K. Cole, personal communication, April 19, 2015; M. Stamper, personal communication, April 20, 2015). Based on this information, it's

not surprising that “Household and Community Economics” was a dominant category identified as a challenge related to food access. While low disposable incomes and food insecurity are not necessarily synonymous, “there is a strong overlap” (Burns, 2004, p. 8). These challenges helped to explain why participants chose to participate in the west Grayson MFP, as Grant, Virginia, is geographically closer than many grocery stores and the MFP offers free food items.

Winnie (2008) discusses how low incomes and low food-access contribute to the food gap in urban areas, often forcing residents to spend higher percentages of their income on food compared to those closer to quality grocery stores and higher disposable incomes. As urban low food-access is measured differently (residents reside more than 1 mile from a grocery store, versus 10 miles in a rural area), it is important to consider that those who reside in more mountainous and less developed areas must travel even farther distances along curvy roads, thereby increasing car dependence, travel time, and expenses. These transportation challenges and costs affect the food access and security of rural communities, and especially the rural elderly, in a way not always observed among their urban counterparts (Arcury, Quandt, Bell, McDonald, & Vitolins, 1998; Blanchard & Matthews, 2007; Sharkey, Johnson, & Dean, 2010). This is not to say that urban areas are more food-secure, only that food access challenges are different, and therefore the solutions must also be different in rural localities.

One objective of this study was to record participant-proposed solutions to food access challenges in Grayson County. While many of the solutions to low-food access were beyond the scope of the EBP, it is important to report these findings to help guide future policy and development planning around food access in rural areas. Reiterating the aforementioned geographic and economic challenges in western Grayson County, participants called for closer and more affordable food options. Additional participant concerns around expensive, low-

quality foods available at smaller stores with limited selection were consistent with the literature (Quandt & Rao, 1999; Quandt et al., 2001a). Food system and industry consolidation coupled with rural factory closings help explain why small grocery stores struggle to stay open or are forced to sell lower-quality food items (Lyson, 2004; Mitchell, 2006).

Researchers Story, Kaphingst, Robinson-O'Brien, and Glanz (2008) indicate that rural areas will need “community action and public policy improvements to strengthen the capacity of rural grocery stores to provide nutritious high-quality and affordable foods” (p. 359). In fact, some small rural grocers are staying open through co-operative models or local government involvement as residents see stores as places for food purchasing and social interaction (Kurtzleben, 2012). Interestingly, there was a request for local produce to be available in grocery stores, as all participants preferred fresh, local, and/or homegrown foods and some traveled out of their way to access local markets. Barriers to participation in the IFM paralleled, to a degree, those related to grocery stores as some participants lived up to an hour away from Independence. Accessing fresh local foods at closer stores with longer hours seemed more appealing. Local food projects, including value chain building through farmer’s markets, local food labeling and promotion, and small farmer supports and training, have been successful across various Appalachian communities, validating the potential for local food development in Grayson County (Taylor, Taylor, Price, & Munn, 2014). By incorporating the benefits of social capital through community-engaged business planning, it may be possible to design successful food stores with or without local food options in Grayson County.

Recommendations for EarthBox® Program Organizers

“Community food project success stories clearly need to be told but so also do stories that explicitly illustrate what was tried and failed and how that failure was used by determined leaders as a stepping stone to move toward the goal for meeting the food needs of low-income people and increasing the self-reliance of communities in providing for their own food needs” (Maretzki & Tuckermanty, 2007; p. 343)

Reid and Taylor (2002) described how academic work, especially in Appalachia, could shift from a capitalist “knowledge industry” (p. 28) to understanding “the thick particularity and holism of living communities and local history” (p. 24), creating the opportunity for more sustainable community development programs. As “the [Appalachian] region suffers from severely underfunded public services” (Taylor et al., 2014, p. 17) and is experiencing a rise in interest around food system work, leaders including EBP organizers are working to address food security and local food system development with creative, culturally appropriate, and community-specific program design. Further, these critical projects are favoring sustainable community revitalization through economic development and strengthening community identity, following the model of civic agriculture (Lyson, 2004).

Honoring the requests of EBP organizers, specific findings around container use and success have been reiterated here. Twelve out of 14 (86%) households indicated success with their EarthBox®, and half (n=7) had various levels of success growing in the other containers: 2 successful with potatoes grown in buckets (3 unsuccessful); 1 successful with potatoes grown in Wood Prairie Farm Smart Bags (1 unsuccessful); 3 successful with other vegetables grown in

buckets (1 unsuccessful); 3 successful with other vegetables grown in pans (1 unsuccessful); and 4 did not use other containers.

Although one participant (Hannah, P11) was unable to grow anything, she indicated she and her children enjoyed the program, regardless. Seven (50%) participants were able to visit the IFM at least once, and one (Dianne, P05) indicated she would go during the 2016 growing season after learning about the SNAP-doubling program. With 2 interview participants enrolled in SNAP, Dianne's (P05) commentary implies a lack of awareness around this IFM program. EBP organizers may then benefit from collaborating with local Extension agents to design education and outreach programming.

Most participants indicated 1-3 container gardens did not produce enough food to impact their household's food security, and all developed a preference for fresh, local, and/or homegrown foods prior to EBP participation which led many to engage in local markets other than the IFM. Though the original goals of impacting community food security, food choices of individuals, and perspectives of the local food system were not met, the EBP was successful in other ways. Using stories from the past to explain the importance of gardening, those with limited mobility indicated an improvement in mental and emotional wellbeing. Some were exposed to the IFM and the SNAP-doubling program for the first time. Also, either through growing vegetables in a container for the first time or through simply maintaining "gardening momentum" when an in-ground plot was infeasible, many interviewees were inspired to expand their HFP in the future with added containers or raised-beds.

Gratitude for the program was found throughout interviews, and Dianne provided a very special appreciation:

Dianne (P05): "It's [the EarthBox®] helped me out sometimes when I just didn't

have maybe a little extra funds to get an extra can of something, I could get that instead of using the cans I have in the cabinet... It's been essential... I just love the program... I just love my EarthBox®, and I just hope we can keep on doing stuff with the EarthBox®... I hope everybody appreciates this as much as I do. I cannot say enough about it, it's just terrific... It's this kind of thing that I need, and I'm glad that I had a chance to talk with you and share and let people know, hey, there are people that do care.”

An original guiding aspiration of organizers was to provide a service to MFP participants that would bring them joy and inspire pride through HFP. In this and the unanticipated ways described above, the EBP was a successful community food project. With some of the original EBP goals yet to be fulfilled, a full program evaluation including suggestions for future improvement is important. In alignment with action-oriented and community-engaged research (CEnR), this study provided the space for EBP participants to offer feedback and ideas for program betterment. In the following sections, both participant and researcher recommendations are provided for organizers.

Improving Local Food Accessibility through the Independence Farmers Market

Paralleling barriers indicated by Trivette (2012), current hours of operation, limited product, and high prices for small quantities were expressed as challenges to participating in the IFM. Though many participants were retired, a number worked during the Friday 9am to 1pm market hours. Of those not working during this time, several traveled long distances, up to an hour-drive, to Independence. Alternative hours on a Saturday or extending into the afternoon on weekdays were recommended to accommodate work schedules and longer commutes. Interestingly, the IFM manager has chosen to add evening hours on Wednesday from 4-7pm in

2016 unrelated to the findings of this case study (K. Cole, personal communication, April 23, 2016).

With an existing preference for fresh, local, and/or homegrown foods, a number of participants were already patrons within what they considered the local food system through visiting nearby roadside stands or larger farmers markets (such as those in Abingdon or Rural Retreat). When choosing between going to a larger market or the IFM, some individuals surprisingly preferred to invest their time and money traveling to developed and familiar venues with more diversity and volume of product at lower prices. Often, these preferred markets also accepted vouchers for the Senior Farmers Market Nutrition Program (SFMNP), further influencing individual farmers market partialities. On top of adding evening market hours; the IFM will also accept SFMNP vouchers in 2016 (K. Cole, personal communication, April 21, 2016), another decision unrelated to these findings.

Though many interviewees had restricted incomes, only two were enrolled in SNAP benefits and could participate in the SNAP-doubling program. As a result, paying the full price for what was considered small quantities of produce was not always feasible. EBP participants perceived high prices and low volume of product as resulting from a small number of market vendors. Those involved with the IFM have been working on these issues since the market opened in 2009, yet participants nevertheless encouraged farmer recruitment as a way to increase volume and decrease prices. When asked about how to accomplish getting others to visit the IFM, participant suggestions ranged from simple advertisement and education on the SNAP-doubling program to a large market structure and free transportation to the market. The proposition of free transportation to the IFM was surprising as this was offered to EBP

participants in 2014. Organizers indicated few utilized this service, which may reflect the challenges related to market hours rather than a lack of interest in visiting the IFM.

While some of the participant recommendations are already in the works and others, such as a permanent structure, may not be feasible at this time, many insights from this research are helpful in determining next steps for IFM outreach. Based on participant reactions, it is recommended that EBP organizers work to inform Grayson County residents of new market hours, the SNAP-doubling program, and the IFM's participation in the SFMNP. Limited Internet access, a common characteristic of rural areas, especially the elderly (LaRose, Gregg, Stover, Straubhaar, & Carpenter, 2007), leaves many unable to access social media or the IFM website. Therefore, well-crafted flyers for community hubs such as the MFPs, churches, and libraries coupled with radio and newspaper ads may be more appropriate marketing avenues. The IFM currently runs weekly radio ads with success (K. Cole, personal communication, April 23, 2016), so it may behoove organizers to include this missing information and watch for any impact on shopper demographics. With many of eastern Grayson County residents living closer to the IFM, it is also suggested that organizers reach out to the eastern Grayson MFP in Fries, Virginia, to continue diversifying the customer base and increase SNAP participation.

Expanding Gardening Impacts through Home Food Production Programming

Twelve (86%) participants indicated community and individual economic challenges, and 10 (71%) were coded for "Barriers to HFP" which included the initial code, "Gardening Resources are Expensive." From these findings, it was not surprising that many interviewees requested free and/or low-cost gardening supplies to support them through another year of HFP. EarthBox®s were preferred over other containers because of their width, wheels, and watering system. As a result, many suggested dispensing wider containers to accommodate more plants

compared to the 5-gallon buckets. Those with limited mobility appreciated the wheels because they could move containers, even if they were fully watered, to follow the sun or make room for other activities. The watering system helped keep disease down, promoted healthy root growth, and was easier than watering at the soil surface, especially when the plants were fully-grown. Hannah (P11) commented on how the tube prevented her from overwatering the EarthBox®, something she was worried about with other containers.

Beyond EarthBox®s and wider containers, requested resources included seeds, starts, soil, fertilizer, fencing materials, lumber for raised beds, perennial food plants, and irrigation systems (especially tubes to reconstruct EarthBox® watering systems). The seeds and starts offered in the 2015-growing season were deeply appreciated, though some either forgot or did not know what they had received. As only 3 participants felt successful growing potatoes, many preferred to use their limited time and container space to grow more expensive products with a short shelf life, such as lettuce and tomatoes. With long-distance travel to the grocery store, many limited their purchases of fresh market produce and stocked up on canned or cellared produce, such as potatoes and onions. It is recommended that the EBP offer clearly labeled seeds and starts of more vulnerable, high-dollar crops to set gardeners up for success, extend financial savings, and increase access to fresh produce.

The original AFP grant proposal indicated “a significant supply of free manure and compost in the area that [could] be tapped for soil enrichment and container gardening” (Grayson LandCare, Inc., AFP CFS Enhancement Grant Proposal, 2014, p. 4). It is suggested that EBP organizers reach out to the Grayson County community for these and other donations rather than continue to rely on grant funding. Once these connections are made between donors, organizers, and participants, “Community HFP Networks,” a category found in this study, can be expanded.

Grounded in experiences of organizing gardening projects, it is recommended that organizers also reach out to local businesses during the growing season for donations. Gardening supplies that can no longer be sold, such as year-old seed and older starts, could be gifted and redistributed through the EBP.

In addition to actual gardening supplies, some simply wanted ideas for low-cost or alternative gardening options. Workshops and gardening clubs offered through community centers were suggested as a way to support new gardeners who were inexperienced. Most interviewees, however, indicated they already knew how to garden, cook, or can so they anticipated not attending. There was, however, excitement around the idea of community gatherings, such as seed swaps, to meet other gardeners, learn new tricks, and obtain free supplies. Thus, educational opportunities are recommended to be built into multidimensional community events to encourage a diversity of gardeners to attend, building community HFP networks and using organizer time efficiently.

With 11 (79%) participant units experiencing limited mobility in some form, there was a request for support with manual labor including tilling, putting up fencing, constructing raised beds, and spring or fall garden preparation. Based on participant feedback and experience supporting home gardeners with volunteer support, it is suggested that “manual labor” days be organized a few times per year and homes are visited in geographic clusters. With this approach, volunteers are not overworked and transportation costs are minimized. One woman (Gloria, P01) indicated that a friend had constructed a raised-bed high enough for her to sit next to and work in without experiencing back or arthritis pain. Inspired by this and past farm to school organizing, it is suggested that high school agriculture students could potentially design and construct raised bed frames to accommodate various needs and physical limitations.

As previously mentioned, it is recommended that container gardening support offered through the EBP be replicated as a low-cost culturally appropriate mental-health service for the rural elderly and those with limited mobility. Participants also promoted container gardening as way to educate young people or inexperienced growers on food production. Other researchers have found that youth and low-income women experience behavioral changes with garden-based education, including increased consumption of produce, personal wellbeing, along with overall gardening skills to reinforce these transformations (McAleese & Rankin, 2007; Rustard & Smith, 2013). Unique and successful programs such as the Farmacy Garden in Christiansburg, Virginia, are offering garden-based health education to people with low incomes in rural areas (M. McGonagle, personal communication, April 23, 2016). Therefore, beyond being appropriate for those with limited mobility, container gardening may serve as an alternative economical, low-maintenance, and unthreatening avenue for youth programs and families with low-incomes.

As food produced in 1-3 containers was considered minimal compared to past experiences, participants specified larger gardens would allow households to produce even more and increase the potential for HFP to impact food security. From this and other participant suggestions around HFP alternatives, it is proposed that the EBP be expanded to offer multiple HFP options to accommodate various levels of need, interest, limitation, and knowledge. Beyond gardening options, one participant suggested a partnership (Carl, P12) with the cannery in Hillsville might help extend the impact of gardening efforts beyond the growing season. Gloria sums up the importance of offering a combination of gardening options:

Gloria (P01): "I think for massive food production for a household, big raised beds... I think that way, you would probably produce more food than the little containers... For apartment people... for people on walkers, their little containers are

really cool, because it lets them do something on many levels. But for actual volume of production, you don't get much. So, a combination [of offering raised beds and container gardens] would probably be very good.”

In consolidating participant and organizer perspectives of gardening support and local food system development, it is recommended that EBP organizers seek out a partnership with Grow Appalachia (GA) to build capacity for food production and community self-reliance in Grayson County beyond MFP participants. With a focus on rural areas in the Appalachian region, GA offers a tailored set of resources for individuals and communities to engage in food production. GA organizers recognize challenges related to food access and food security in areas like Grayson County. In response, they offer a wide range of resources to emphasize “food production in order to introduce as much no-cost, fresh healthy food as possible to the region. The basic goal is to help as many families grow as much of their own food as possible” (GA, n.d., “What We Do”). GA programs offer garden grants, workshops, technical and physical assistance, harvest donations, entrepreneurship training, capacity building, chickens, and high tunnels in a way that honors and preserves local tradition and heritage (GA, n.d.).

Appalachian Sustainable Development (ASD) located in Abingdon, Virginia, has maintained a GA partnership since 2012 to “provide training, technical support, seeds, plants, tools and garden partners” (ASD, “Grow Your Own,” n.d.) through the Grow Your Own program in addition to container gardens through their Garden Box Project. The ADS office is located just under an hour and a half from the Grayson LandCare, Inc. office in Independence, and the EBP was partially modeled after the Garden Box Project (K. Terry, personal communication, November 12, 2015). As a result, it may be possible to extend ASD’s GA programming into Grayson County as the existing offerings match requests from the community.

By building networks from existing community assets, the EBP organizers could offer diverse gardening and farmer-training programs with the support of ASD and GA. Thereby impacting both community food security and the local food system beyond the western Grayson MFP clients.

Conclusion

Through this evaluative case study, it was found that physical limitations, community food experiences, and a deep personal connection to past food production intersected to create the context for participation in container gardening. When examined independently of other related activities, EBP participation minimally impacted community food security, individual food choices, or perspectives of the local food system. Nevertheless, container gardening was seen as part of lifelong HFP endeavors, and participants placed great value on the containers as providing alternative and feasible modes to continue a meaningful practice. These small gardens and IFM opportunities provided participants avenues to exercise their value system and fueled the existing impetus around HFP. This confirmed the EBP as a success because community food projects do not simply address issues of food security, but also nurture social cohesion, community development, and individual wellbeing (Maretzki & Tuckermanty, 2007).

Barriers of low-income and high transportation costs overlapped with existing gardening knowledge and preferences for fresh produce to create an excellent opportunity for the EBP organizers to begin addressing issues of food access, food choices, and local food system engagement. Evaluation of this program revealed the potential for container gardening to be an inexpensive and culturally appropriate community-based social service to maintain the mental wellbeing of rural elderly, especially those with limited mobility. Further, an existing impetus

for HFP proves the EBP has potential to expand through partnerships with ASD and GA to offer alternative gardening and farming options. By incorporating these recommendations, HFP programming in Grayson County could increase food security, preserve cultural traditions, and serve as a model for building local food systems in rural areas of the United States.

This study is another example of “the contribution of academic and practitioner partnerships in research and practice aimed at understanding and guiding food system change” (Hinrichs & Barham, 2007, p. 346). As a result, this research provided a wealth of findings while leaving room for future work. Personal stories were utilized to understand how HFP was situated within the lives of EBP participants, revealing the importance of being able to garden in containers. There is potential to expand upon this storytelling component through the methods of narrative inquiry (Clandinin & Connelly, 2000) or portraiture (Lawrence-Lightfoot & Davis, 1997) to gain deeper insight into the meaning and value systems around HFP in rural Appalachia. Further investigation of container gardening, animal husbandry, homesteading, and in-ground or raised bed gardening could further determine the potential or existing impacts of HFP on rural communities. Overall, whether the intended outcomes include personal wellbeing or increased CFS, this case study serves to endorse a public effort to evaluate and support home food production in rural areas of the United States.

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APPENDICES

Appendix A: Preliminary 2014 Survey

EarthBox® Gardening

1. How has the gardening experience been for you?
2. What did your family or household think about gardening? Did they help with the garden?
3. What did you grow in your garden box?
4. Did you try to grow green beans?

If you tried to grow green beans:

5. How many of your bean seeds sprouted?
6. How many of your bean plants produced beans?
7. How many times were you able to pick beans?
8. How did you use them, and did everyone in your family or household try them?

Farmer's Market

1. Where you able to attend the Independence Farmer's Market this summer?

If you were able to attend the market:

2. What did you think about the market? Is there something you'd change about it?
3. How many times did you go?
4. Did you purchase anything at the market and, if so, did you use SNAP benefits?

Additional Questions

1. Did anyone in your family or household experience any changes in their diet this summer? If so, what was the change?
2. What would you like to see in your garden box this winter and/or spring?
3. Did this experience inspire you to try something different?

Appendix B: IRB Approval Letter



Office of Research Compliance
Institutional Review Board
North End Center, Suite 4120, Virginia Tech
300 Turner Street NW
Blacksburg, Virginia 24061
540/231-4606 Fax 540/231-0959
email irb@vt.edu
website <http://www.irb.vt.edu>

MEMORANDUM

DATE: October 22, 2015
TO: Susan Clark, Liza Dobson, Anita M Puckett, Megan E O'Rourke
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires July 29, 2020)
PROTOCOL TITLE: Goals, Motivations, Impacts, and Meaning of Home Gardening in Grayson County, VA
IRB NUMBER: 15-607

Effective October 22, 2015, the Virginia Tech Institutional Review Board (IRB) Chair, David M Moore, approved the Amendment request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 5,6,7**
Protocol Approval Date: **September 21, 2015**
Protocol Expiration Date: **September 20, 2016**
Continuing Review Due Date*: **September 6, 2016**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

Date*	OSP Number	Sponsor	Grant Comparison Conducted?

* Date this proposal number was compared, assessed as not requiring comparison, or comparison information was revised.

If this IRB protocol is to cover any other grant proposals, please contact the IRB office (irbadmin@vt.edu) immediately.

Appendix C: Interview Protocol

Goals, Motivations, Impacts, and Meaning of Home Gardening Interview Protocol

The purpose of this qualitative study is to listen to the experiences of participants in the Grayson Green Bean Project, also called the EarthBox® Program, in order to discover their goals within the project, their contextual and personal motivations for participating in the project, the impact of their engagement in the project, and what personal or cultural meanings they attach to their engagement in the project.

Further, this qualitative study will investigate the potential for the EarthBox® Program, to act as a springboard for further agricultural activities to impact community food security, food choices of individuals, and the local food system.

Through up to twenty-five participant-interviews, the goals and motivations of project collaborators and participants will be compared and analyzed to determine if, how, and why participants may value engagement in the project. In exploring the experience of and impacts on participants, recommendations for future actions of the project and improvement of food access for Grayson County residents can be offered. Further, this study will reveal personal and cultural differences in attitudes and values towards gardening and local food access. In doing so, this and future projects can develop more culturally sensitive models that consider social diversity and improve the success of the project for new and retained participants.

Introductory Protocol

Hello, I'm Liza. I don't know if you remember me, but I've been volunteering with the Food Pantry in Troutdale and handing out seeds and plant starts this summer. I grew up in a small town in Kentucky, and my Mom is from near Meadows of Dan in Floyd County. I just spent the summer working on a farm in Giles County, and I was hoping to learn more about your garden.

(Go over consent form)

Thank you for meeting with me. To help with my note-taking, I'd like to audio record our conversations as I mentioned in the consent form. Again, I will use the recording to make sure I get your words exactly. This information is completely confidential, and only the three professors helping me with my Master's project, possibly an IRB-approved undergraduate researcher, and I will have access to these recordings. Again, we will delete the recordings when the project is over. If you ever feel uncomfortable answering a question, we can stop the interview at anytime.

Do you have any further questions about participating in this interview?

(Turn recording devices on, and test one)

I am hoping to learn why you decided to garden and what gardening has meant to you. You have offered to chat with me because you're in the second year of the EarthBox® Program. I will use these interviews to help direct and improve the program to better serve you and others next year. This Master's project may also determine whether this program may be useful in other places.

I have planned this interview to last up to two hours. During this time, I do have some questions, but am here mainly to listen.

Part 1: Introduction

This section will be used to offer space for participants to talk about who they are. This section will hopefully make the participant more comfortable and show where the EarthBox® Project may fit into their life.

1. Could you tell me a little about yourself?
 - a. What do you or did you do for a living or as a home person?
 - b. Did you grow up here? Where all have you lived in your life? For how long?
 - c. Do you have family here?
 - d. What events or kinds of events in your life have had the most impact on your values and beliefs? Since becoming an adult, have you changed your values and ideas about the world over the years do you think? If so, in what ways?

Part 2: Gardening Background

This section will help bring the conversation back to gardening, in general.

2. Could you tell me when and why you first started gardening?
3. What do you like about gardening? Why is it important to you?
4. What have you grown, and what all did you do with it?
 - a. Do you preserve any through canning, freezing, dehydrating, etc.?
 - b. Do you share with your family, friends or neighbors? Do they share with you?
5. How did you cook or fix what you grew? Any special recipes? Any new recipes or new ways of preparing foods?
6. If you ever stopped gardening, why did you do so?
(Write down challenges to reference in reflection section)

Part 3: EarthBox® Gardens

This section will touch specifically on the EarthBox® gardens.

7. Why did you decide to apply for an EarthBox® and continue into the second year of the garden program?

8. Was gardening in an EarthBox® and/or containers what you expected it to be, and why?
9. Was there anything difficult about gardening in the EarthBox® and/or other containers?
(Write down challenges to reference in reflection section)
 - a. Where do you usually get information about gardening (people, internet, books)?
 - b. Did you have to get more information about how to use EarthBox® Gardens than was provided to you by project personnel? If so, how did you get it?
10. What would you need to continue gardening in your EarthBox® and/or other containers?
(Write suggestions down to reference in reflection section)

Part 4: Food Access

11. Do you eat any differently when your garden is growing compared to when it's not growing?
12. Do you save money when eating from your garden?
13. Where do you do your grocery shopping, and why? What kinds of food do you get there? What do you not like about these grocery stores?
14. Do you wish there were other options? If so, what would they look like?
15. Have you visited the Independence Farmers Market? If yes, what did you think about it?
 - a. Did you buy anything, and what?
 - b. Would you go back, and why?
16. *(If the Farmers' Market experience was positive)*
What would you suggest to encourage more folks to attend?
(Write suggestions down to reference in reflection section)

Part 5: Reflection

Remind participants that responses can help improve the program to better serve them and others next year. Remind them that answers will not have any negative consequences to their involvement in the gardening project. Remind them that their responses will remain anonymous.

17. Has gardening in an EarthBox® and/or containers been important or of value to you? In what ways? *(Relationships, activities, food preservation, saving money, meeting some value or cultural meaning need)*
 - a. Do you think you'll keep gardening in the future?
18. What do you think could happen if more folks gardened in Grayson County?
(Revisit the suggestions mentioned previously)

19. Do you have any ideas on how to improve and/or expand the project through gardening and/or visiting the Farmers Market?

(Revisit the challenges & suggestions mentioned previously)

20. Is there anything else you would like to share that we have not already covered?

(Ask participant to fill out Demographics Form)

Appendix D: Demographic Form

Demographic Information

Interviewee Pseudonym/Code:

Thank you so much for your stories.

It would be helpful if you wouldn't mind filling out this short form.

Filling out this form is completely voluntary.

Age	
Gender	
Race	
<u>Total</u> # of folks in household	
# of <u>kids</u> in household	
Do you have SNAP benefits?	
Do you have social security benefits?	
If you have social security benefits, is it your main income?	

Thank you so much!

All information on this form is confidential and will be deleted when the project is over.

Appendix E: Informed Consent Form

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
Informed Consent for Participants
in Research Projects Involving Human Subjects

Title of Study: Goals, Motivations, Impacts, and Meaning of Home Gardening in Grayson County, VA

Graduate Co-Investigator: Liza Dobson, VT Department: Horticulture, liza7@vt.edu, 606 - 407 – 1501

Primary Investigator: Dr. Susan Clark, VT Department: Horticulture, clark55@vt.edu, 540-231-8768

I. Purpose of this Research Project

The purpose of this project is to learn why individuals decided to garden using the EarthBox® Program and what the program has meant to them. We may also talk about the Independence Farmers Market, if you were able to visit it. I plan to use what I get from interviews in my graduate thesis. The plan is to interview up to 25 individuals in the program who participated in the second year. I will ask a few questions, but I mainly want to listen to your stories.

II. Interview Procedures

The interview will last up to two hours and will be audio-recorded with your consent, so that I get your words exactly right. I may also take notes during the interview.

After our chat, you could:

1. complete and/or return a short form with basic information about yourself and your household, such as age, race, gender, and the number of individuals in your household;
2. provide the physical location of your EarthBox® and/or other gardens
3. allow me to visit your EarthBox® and/or other gardens
4. allow me to take a video and/or photos of your EarthBox® and/or other gardens
5. let me call or email you to double check that I got your words and information all right

III. Risks

The risks associated with participation in this interview are considered to be minimal. I hope to talk about where you do your grocery shopping, and we may chat about the Food Pantry in Troutdale and the Independence Farmers Market. Other than that, I hope to focus our chat on your garden. I will not ask for sensitive personal information during the interview.

IV. Benefits

There are no financial benefits to participating in this interview.

The results of this project hopefully can benefit society by gaining new understanding about how and why individuals garden. You may also learn more about what is happening with the Grayson County food system. This interview will give you an opportunity to chat about and reflect on your experience in

Participant should be given a copy of this form

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the EarthBox® Program. These interviews can help direct and/or improve the program to better serve you and others next year. This research project may also determine whether this program may be useful in other places.

V. Extent of Anonymity and Confidentiality

This project has been reviewed and approved by the Virginia Tech Institutional Review Board, which is a group that makes sure researchers do everything we can to make you comfortable and safe during our research. You have the right to remain anonymous in any publication.

We will do everything we can to keep the interview confidential. All voice recordings, pictures/videos of your garden, and forms will be labeled with a code or pseudonym (i.e., false names), so your real name and other identifying information will not be attached to anything from our visit. A paper with your code/pseudonym and real name will be kept locked in a file cabinet on Virginia Tech campus. All recordings, photos, and forms labeled only with your code/pseudonym will be locked in a different file cabinet on Virginia Tech campus when we aren't using them.

Either an IRB-approved undergraduate researcher or I will transcribe the audio recordings under the supervision of Dr. Susan Clark. When transcribing the interviews, codes or pseudonyms will be used for your name and any other individuals you mention. Any details in the interview recordings that could identify you will also be altered during the transcription process. These codes/pseudonyms will also be used in preparing any reports of the research. After we are finished transcribing, the audio recordings will be deleted from recorders and appropriately destroyed. The transcriptions will be stored on a password-protected computer for a minimum of 3 years.

I may use direct quotations from our interview in my Master's thesis, and they will be labeled only with your pseudonym or code. If you ever want to read my final thesis, you can search for it through the VTechWorks Library site at <http://vtechworks.lib.vt.edu/handle/10919/9291>. You are also free to contact me at 606-407-1501 or liza7@vt.edu, and I will send you a copy.

There is a chance that the Institutional Review Board will ask to check on this Masters project to make sure I'm doing everything I can to protect you as a participant, and approved individuals could look at the information you provide. Again, this board is responsible for making sure we do everything we can to keep your information confidential.

VI. Compensation

You will receive no fiscal compensation for participating in this interview; interviews are completely voluntary.

VII. Freedom to Withdraw

Your participation in this project is in no way required. You are free to choose not to answer any question. We can also stop the interview at anytime. If I feel we should stop the interview, I will do so.

Participant should be given a copy of this form

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Your participation is entirely voluntary, and if you should decline to participate, that is fine. It will not have any negative consequences to your involvement in the gardening project. Similarly, you are free to withdraw from this research at any time. If you choose to withdraw, any information about you and any data not already analyzed will be destroyed.

VIII. Questions or Concerns

If you ever have any questions about this Masters project, you are welcome to give call Liza Dobson at (606) 407-1501 or send me an email at liza7@vt.edu at any time. You may also contact Dr. Susan Clark at 540-231-8768 or clark55@vt.edu. You are welcome to call or email David Moore, Associate Vice President for Research Compliance Institutional Review Board Chair at Virginia Tech at (540) 231-4991 or moored@vt.edu if you have any questions or concerns with this interview.

IX. Subject's Consent

I have read this consent form, and all my questions are answered. I hereby acknowledge the above and give my voluntary consent to **(please check all that apply)**:

- participate in a one and a half to two hour voice recorded interview.
- complete and/or return a short form with basic information about myself and my household, such as age, race, gender, number of individuals in my household, and so on
- provide the physical location of my EarthBox® and/or other gardens
- allow Liza Dobson to visit my EarthBox® and/or other gardens
- allow Liza Dobson to take a video and/or photos of my EarthBox® and/or other gardens
- let Liza Dobson call or email me after our chat to double check that she got my words and information all right

_____ Date _____
Participant signature

Participant printed name

Participant should be given a copy of this form

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Appendix F: Recruitment Materials

Recruitment Script: Phone calls by a Mobile Food Pantry Volunteer

Hello! Is this [insert participant name]?

I'm [insert name].

I don't know if you remember Liza, but she was handing out seeds and plant starts to folks at the Food Pantry in Troutdale all summer. She also brought starts in May when we gave out more containers and soil for folks in the EarthBox® Program. She was hoping to interview folks this fall who've been part of the EarthBox® Program these past two years.

She hopes to learn why folks decided to garden in the program and what the program has meant to them. She may also ask about the Independence Farmers Market, if folks were able to make it. She hopes that these interviews can help direct and improve the program for next year. She also hopes to find if this program may be useful in other areas in the region.

The interviews will last about an hour and half to two hours and will be audio-recorded so that she gets everyone's words exactly right. Everything in the interview will be confidential, and all recordings will be deleted when she is finished with the project. She doesn't have any funding to pay folks for their time, so interviews are completely voluntary with no compensation. Also, if you ever feel uncomfortable answering a question during the interview, you can stop the interview at anytime; not a problem. She'll have a few questions ready, but mainly wants to listen to your stories.

Would you be interested in letting Liza interview you this fall about your EarthBox® and about your visit to the Independence Farmers Market, if you were able to go?

(If no...)

Oh, okay! Thank you for your time. Have a great evening.

(If yes...)

Okay, great! Can I give her your phone number to plan a time to chat? She was hoping to meet at folks' homes to see their gardens, but can meet anywhere. Do you have a preference of where to meet? Do you know what times you might be available this fall? Liza is available starting at the end of September.

(Take down information to schedule an interview)

Thank you, again! Have a great day!

Recruitment Script: In-person Conversations at the Mobile Food Pantry

Hello! I'm Liza.

I don't know if you remember me, but I've been handing out seeds and plant starts to folks all summer. I was hoping to interview folks this fall who've been part of the EarthBox® Program these past two years. Did you get an EarthBox® last year?

(If no...)

Oh, okay! Thank you for your time. Have a great evening.

(If yes...)

Great! I am hoping to learn why folks decided to garden in the program and what the program has meant to them. We may also talk about the Independence Farmers Market, if folks were able to make it. I hope that these interviews can help direct and improve the program for next year. I also hope to find if this program may be useful in other areas in the region.

The interviews will last about an hour and half to two hours and will be audio-recorded so that I get everyone's words exactly right. Everything in the interview will be confidential, and all recordings will be deleted when we are finished with the project. I don't have any funding to pay folks for their time, so interviews are completely voluntary with no compensation. Also, if you ever feel uncomfortable answering a question during the interview, we can stop at any time; not a problem. I will have a few questions ready, but I mainly want to listen to your stories.

Would you be interested in letting me interview you about your EarthBox® and about your visit to the Independence Farmers Market, if you were able to go?

(If no...)

Oh, okay! Thank you for your time. Have a great evening.

(If yes...)

Okay, great! Could I have your phone number to set up a time to chat? I was hoping to meet at folks' homes to see their gardens, but I can meet anywhere. Do you have a preference of where we could meet? Do you know what times you might be available, or should I just ask when I call you? I'll be available starting at the end of September.

(Take down information to schedule an interview)

Thank you, again! I look forward to chatting with you this fall. Have a great evening!