

**Perceived Outcomes of a Community-based Urban Agriculture and Nutrition
Education Program:
A Case Study of Common Good City Farm's
Green Tomorrows Program in Washington, D.C.**

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ABSTRACT

Urban farm education programs can provide opportunities for community members to acquire skills and knowledge related to agriculture, food production, and nutrition. This project proposed a case study focusing on the Common Good City Farm's Green Tomorrows program, an urban agriculture and nutrition education program for residents of Washington D.C., which aims to increase participant level of food security, ability to grow crops in urban locations, and knowledge of nutrition, food preparation, and food budgeting. The purpose of this study was to gain a better understanding of how effectively the Green Tomorrows program accomplished its intended program goals and outcomes. Semi-structured interviews were conducted with program staff and recent regular participants to: 1) identify similarities and differences between the staff and participant stated program goals; 2) determine key program impacts on participants; and 3) generate programmatic recommendations. The semi-structured interview guides included questions that revealed staff and program graduates perceptions concerning goals and outcomes of the program. Participants described how the program's food distribution resulted in increased consumption of produce, which contributed to improved food security. They reported greater knowledge of agricultural methods and healthy eating, and the ability to prepare and shop for healthily food post-program completion. Overall, the Green Tomorrow's program outcomes aligned with staff and participant expectations, and positively influenced participant's food security, knowledge of nutrition, food preparation, and food budgeting skills through the community programming activities.

Keywords

Urban Agriculture, Urban Gardening, Nutrition Education, Food Distribution, Food Security

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INTRODUCTION

Agricultural and nutrition education programs have been established to promote food security, agricultural skills, nutritional knowledge, and community health. These programs provide unique educational opportunities regarding food and health, and convey food and nutritional knowledge to individuals that live in communities that are increasingly disengaged from food sources and knowledge (Harmon & Maretzki, 2006). In addition, these programs provide information concerning environmental and community health (Harmon & Maretzki, 2006). Evidence regarding the success of urban garden programs in improving nutritional knowledge and health of participants through accomplishing program goals is limited.

Positive community health outcomes have been a result of increased participation in agricultural and nutrition education programs (Abegunde, 2012; Robinson-O'Brien et al., 2009; Lyson 2005). Food choices among participants post-program completion have been shown to improve, with substantial increases in fruit and vegetable consumption (Robinson-O'Brien et al., 2009; French & Stables, 2003; McAleese & Rankin, 2007). In addition to food related knowledge, these programs can result in enhanced critical thinking, cooperation in work environments, problem solving skills, and information processing abilities (Chaskin, 2009). In general, the evaluation of program results has indicated that participants make healthier food and lifestyle choices due to the information and skills bequeathed to them through the programs (Serrano et al., 2011).

Some urban agricultural and nutrition education programs provide training and educational opportunities that focus on increasing local food production and distribution of the food to community members (Abegunde, 2012; Hamm, 2007; Meenar & Hoover, 2012; Thomson et al., 2007). This increased production and distribution of agricultural products in

urban areas can increase community food security (Kaufman & Bailkey, 2000; Meenar & Hoover, 2012). Kaufman and Bailkey's (2000) study of urban agriculture programs in Chicago, Boston, and Philadelphia indicated that those programs were able to positively affect local food security. Skills and knowledge gained by nutritional and agricultural education program participants would lead to an increased potential for urban food production, and subsequently, enhanced food security.

The capacity of urban agriculture and nutrition education programs to increase participant knowledge of nutrition and ability to grow crops in urban areas has been illustrated by multiple studies. Yet, the ability of these programs to consistently measure gains in participant knowledge and skills remains a challenge (Davis, 2012; Hernandez-Garbanzo et al., 2013; Serrano et al., 2011). Analysis of the realized outcomes of a program, and a comparison of those to desired outcomes, can guide changes in a program's curriculum and practices that may better serve participants. The proposed project uses the urban agriculture and nutrition education program, Green Tomorrows of Washington D.C.'s Common Good City Farm (CGCF), as a case study to determine if the intended outcomes of the program align with the actual outcomes of the program reported by staff and regular participants. Program participants will be identified from the last two program cycles, and are labeled as regular participants if they have completed more than three program session. The purpose of this study is to gain a clearer understanding of how effective the Green Tomorrows program is in meeting its intended program goals and outcomes.

Common Good City Farm's Green Tomorrows Program

Green Tomorrows is one of several urban agriculture and nutrition education programs administered by CGCF, a non-profit organization established in 2007 in the LeDroit Park neighborhood of Washington, DC. Common Good City Farm's organizational goals are to

produce food, and help to educate community members, and increase food security for low-income residents of Washington, DC. Common Good City Farm programs provide agricultural training, and information regarding nutrition, food preparation, food budgeting, and environmental stewardship. The organization has enrolled over 1000 District residents in workshops, provided services to 1500 school children in the District, and enlisted over 2000 volunteers since commencing operations in 2007. They provide youth education programs, on the farm and off-site, agricultural and food workshops that are open to the public, a community supported agriculture program, as well as the Green Tomorrows program. These education programs are important in addressing the myriad of food and health related problems in Washington, DC.

The Green Tomorrows curriculum provides qualifying adults, or families, with gardening experience and educational workshops in health and nutrition, as well as fresh produce from the farm. This food education program is provided at no cost to willing and qualifying Washington, DC residents. To be eligible, participants must collect an income below the Washington DC living wage, which is \$480 per week without dependents, or \$980 per week with dependents. Since 2011 the Green Tomorrows program has enrolled over 150 participants, and has distributed over 5,200 pounds of food to these participants. The typical demographics of participants is 50 years of age (26% male, 74% female) and 88% are Black or African American. Eighty-one percent have attained a high school or general equivalency diploma. The last program cycle included 17 garden workshops that drew over 60 participants cumulatively, during which 113.5 hours of farm work were completed by program participants, who collected over 1,200 pounds of food through the program. The stated goals of the program are to help

participants develop skills related to growing produce in urban areas, and knowledge concerning nutrition, food preparation, and food budgeting.

The skills and knowledge gained through this program are acquired through on-farm lessons and fieldwork, and on farm workshops. Program lessons plans are designed to increase participant knowledge of growing crops in urban areas, and include learning on how to: Use cover crops to increase soil health; create compost and properly incorporate it into crop beds; sow seeds, care for seedlings; properly care for established plants through irrigation, weeding, pruning, and trellising techniques; harvest crops; and manage pests and diseases. These lessons are coupled with demonstrations and workshops that meet program objectives regarding increasing participant knowledge of nutrition, food preparation, and food budgeting.

Demonstrations and workshops topics include:

- Cooking demonstrations offered by local chefs, utilizing food grown on the farm
- Dietary counseling and planning conducted by a nutritionist
- Instruction on creating a food budget, along with actual participant construction of food budgets under the guide of staff, and
- Food preservation techniques (pickling, drying, and canning).

Another component of the program involves a food exchange for program participation.

Common Good City Farm allows participants to take home up to 15 pounds of produce grown at the farm once a week. This programmatic component strives to fulfill the program goal of increasing participant food security, as well as give participants an opportunity to practice food preparation skills learned during workshops.

Green Tomorrows Education Program: Statement of the Problem

Formal agriculture and nutrition education through organized workshops, classes, or training, in combination with informal education via practical gardening components can lead to improvement of participant health, and gains in practical agricultural knowledge and skills (Robinson-O'Brien et al., 2009). Strides in participant health and personal development are only made in programs that can effectively convey information and skills. Therefore, it has been noted that there is an importance in evaluating these types of programs to establish if they are reaching their objectives (Serrano et al., 2011). Understanding how effectively a program conveys information and skills to participants through a formal program evaluation can greatly increase the likelihood that a program will successfully meet outcomes set for participants (Abi-Nader et al., 2009). Performing a program evaluation can result in design and implementation changes that enhance program curriculum and methods of delivery that serve the target populations more effectively (Robinson-O'Brien et al., 2009). They concluded that program evaluations resulted in improvements to curriculum and operating actions that are better directed at the expressed needs and desires of participants (Robinson-O'Brien et al., 2009). Another study of the SNAP-Ed program by Wyker et al. (2012) revealed that more focused education programs may lead to the higher likelihood that desired program outcomes would be achieved.

Between 2009 and 2011 in Washington, D.C., 12.6% of households were food insecure (Andrews et al., 2012). According to data collected by Feeding America in 2011, the rate of food insecurity in the District of Columbia is 15.7% (Feeding America, 2013). High rates of obesity are partially attributed to the lack of access to healthy foods, and the overconsumption of processed, and energy dense foods. Over two-thirds of the district's residents are overweight, including 23% of its youth (DCDH, 2013). In LeDroit Park where Common Good City Farm is located, the obese population is 20% and 10% have diabetes. Sources of fresh produce are

scarce, and education about food and nutrition are lacking. Food insecurity has been correlated with a heightened likelihood of an individual being obese (Pan et al., 2012). Obesity rates in Washington D.C. are high (around 35%) compared to the 12 states studied by Pan et al. (2012), which had an average obesity rate of 27.1% (DCDH, 2013). Among the 12 states studied, adult obesity rates were higher among populations that were food insecure, at 35.1%, while food secure adult obesity rates were 25.2% (Pan et al., 2012). Food insecurity and poor knowledge of nutrition have resulted in an urban population that has heightened levels of poor health.

The primary goal of the Green Tomorrows program is to mitigate declining community health through providing education and training to community members about food, nutrition, and agriculture, while additionally providing participants with a regular source of free freshly grown produce. The program's stated outcomes are to increase each participant's level of food security, ability to grow crops in an urban setting, and knowledge of nutrition, food preparation, and food budgeting. According to the Executive Director (ED), no formal assessment or evaluation has been conducted to determine the impacts of the Green Tomorrows programming. Comparison of the stated objectives of Green Tomorrows with actual outcomes of the program using input about participant and staff experiences and attitudes could identify ways in which the program could better serve participants and fulfill program objectives.

Study Purpose, Objectives, and Significance

The purpose of this study was to gain a better understanding of how effective the Green Tomorrows program was in meeting its intended program goals and outcomes. During the study, semi-structured interviews were conducted with program staff and regular participants to: 1) identify similarities and differences between participant objectives and the stated program

objectives; 2) determine key program impacts on participants; and 3) generate programmatic recommendations.

This study is significant because program evaluation may enable educators to construct and proctor programs that more effectively convey information and skills to participants. The availability of quality nutritional education programs may help to improve national health, through reducing participant likelihood of developing heart disease, cancers, and obesity (Robinson-O'Brien et al., 2009). Agricultural and nutrition education programs can help to address obesity, which affects more than 30% of the adult population in the United States (Ogden et al., 2007). Food security can be increased in a community through the availability of food education programs (Hamm & Bellows, 2003). Providing agricultural and nutrition education programs can be an effective tool in combating health problems and food insecurity among individuals and communities.

It is important to evaluate these programs, as more effective and focused education programs may result in the enhanced health of participants (Wyker et al., 2012). Assessment of these programs, and the development of evaluation tools, may be crucial to the continued implementation of such programs, and enhance development of curriculum. This is echoed by Baker et al. (2011), who notes the importance of determining what actions will most benefit the participants to provide adequate and effective programming. Evaluation of participant and staff attitudes towards, and experiences with, the Green Tomorrows program, as well as whether program objectives are being met has not been before officially conducted. The results from this study provide documentation to CGCF for refining the Green Tomorrows curriculum to better serve participant goals voiced during interviews, and reach the stated program goals. Additionally, the report composed of interview excerpts potentially provides material that may

help illustrate participant needs and desires to future staff members, as well as promotional material for use by CGCF to advertise the program.

LITERATURE REVIEW

Urban Agriculture

Urban agriculture has long been a vehicle for invigorating inner-city diets and economies in developing countries (Taylor & Lovell, 2012). Due to enhanced interest in local food production and consumption, and economic hardships experienced by urban populations, urban food production has become increasingly popular within the United States (Taylor & Lovell, 2012). While the number of rural farming operations has declined in the United States, urban farming operations are increasingly numerous and productive (Brown, 2002). Urban agriculture can act as a catalyst for positive change within urban areas that are affected by poverty, food insecurity, negative health trends, and below-average education levels, as these facets of a population are “tightly linked to a community’s social and economic development” (Lyson, 2004). Agriculture in urban settings can enhance the social and economic outlooks of these areas through providing knowledge, training, and tangible products that can be utilized by participating citizens (Abegunde, 2012; Kaufman & Bailkey, 2004). The American food system is dominated by large conventional agricultural producers and retailers that are driven by large scale production and profits (Lyson, 2007). This has resulted in agribusiness control of food production, sales, and availability, and has greatly reduced consumer food options and access to certain foods, which is associated with social inequality, poor public health and working conditions, loss of resources, and environmental degradation (Guptil et al., 2013; Lyson, 2005; Lyson, 2007; Winne, 2008; Pimentel et al., 2005). Urban agriculture can help mitigate these negative effects through providing a local and healthy food source, education and training

opportunities, employment, and prospects for community development (Meenar & Hoover, 2012).

Food security is the ability for individuals to be able to afford and have access to culturally appropriate food, in adequate abundance at all times (Winne, 2008). Many urban communities lack reasonable access to healthy foods due to the scarcity of markets, and these communities are likely to endure economic hardships, poor population health, and a decreased quality of life for residents (Blanchard & Mathews, 2007). Food insecurity is linked to the enhanced prospects of developing chronic diseases, and can lead to decreased work and school productivity (Brown, 2002). A USDA study on food security found that around 17.6 million United States households were food insecure in 2012 (Coleman-Jensen et al., 2013). Additionally, it was found that 10% of households with children were food insecure at some point during 2012 (Coleman-Jensen et al., 2013). Impoverished inner-city populations are more likely to face food insecurity, and appeals for emergency food assistance have risen in many U.S. cities (Brown, 2002).

Urban agriculture can provide food to local residents, therefore reducing food insecurity in these communities (Kaufman & Bailkey, 2004). City farming operations can be viable sources of nutrient-dense foods, providing supplementary calories when resources are insufficient, and also increase “dietary diversity” (Maxwell, 2001). Hoover and Meenar (2012) found in a study of food security in Philadelphia that urban agriculture was able to improve community access to quality foods in large quantities. Eighty-one programs across Philadelphia were able to harvest and distribute 4.9 million dollars worth of produce to 18,000 people annually. Bailkey and Kaufman’s (2004) study found similarly that urban agriculture programs in Boston, Chicago, and Philadelphia increase food security.

Increased food security in urban communities can lead to the improved health of individuals. Where food insecurity is prevalent, a lack of access to fresh and nutritious foods has led to heightened instances of health problems, such as obesity, type-2 diabetes, hypertension, stroke, heart disease, certain cancers, and premature death, compared to regions that are food secure (Meenar & Hoover, 2012; Pan et al., 2012). Urban agriculture can improve access to nutritious and affordable foods (Kaufman & Bailkey, 2004). Local production of food may not only enhance diets, but also relieve stresses put upon government and private organizations that provide assistance to the food insecure, as well as service those unable to access these traditional aide sources (Maxwell, 2001). Urban food production has been utilized and hypothesized as a method for increasing food security and improving personal health within urban communities (Barthel & Isendahl, 2012; Kaufman & Bailkey, 2000; Kremer & DeLiberty, 2011; Meenar & Hoover, 2012; Metcalf & Widener 2011).

Urban food production also provides locally based job and training opportunities, which can lead to more robust local economies, and more financially secure individuals. The exact revenue producing potential of urban farming programs is hard to precisely pinpoint, but analysis of recent case studies indicate that urban agriculture programs can positively impact local economies (Nugent, 2001). Four million and 25 million dollars were generated through urban agriculture in Nairobi, Kenya in 1985, and Dar es Salaam, Tanzania in 1996, respectively (Nugent, 2001). The sale of food grown by these operations can introduce millions of dollars into local economies (Hamm, 2007). As stated earlier, Meenar and Hoover's (2012) study of food production in Philadelphia found that 4.9 million dollars of food is produced annually within the municipality. Urban farming also provides training opportunities that can enhance a participant's life through conveying skills and knowledge. Education garnered from

involvement with these programs is especially valuable to youth, teaching not only skills pivotal to employment, but also the value of community change and involvement (Meenar & Hoover, 2012).

The production of food within a community can increase awareness of food system choices and development, and initiate conversation about the state of the community. Conversations and debates among community members can foster a shared community vision, leading towards unified actions that may help to develop a stronger and higher functioning community (Thomson et al., 2007). These programs have also offered the means to more fully integrate historically marginalized groups into the community, including women, minorities, the elderly, the disabled, the unemployed, and immigrants (Zeeuw, 2001). Increased involvement of individuals in the community leads to positive improvements for residents. Bailkey and Kaufman (2000) and Meenar and Hoover (2012) found that imbedded urban agriculture operations often lead to increased neighborhood property values, and decreased instances of crime.

The introduction of urban agriculture programs to neighborhoods has led to instances of improved community and individual health, increased consumption of nutrient-dense foods, decreased food insecurity, enhanced local economies, and training and education opportunities (Abegunde, 2012; Hamm, 2007; Meenar & Hoover, 2012; Thomson et al., 2007). Urban agriculture is an educational tool with the potential to enhance communities, and their food systems.

Urban Nutrition and Agricultural Education Programs

Urban citizens of the United States are by-and-large, fairly disconnected from food sources, and therefore have difficulty identifying healthy food choices, as well as the

consequences that food has on the environment, economy, and personal health (Harmon & Maretzki, 2006). A study by Harmon and Maretzki (2006) found that few youth had any significant understanding of the food system, or how food choices impacted health. Inner-city residents are also less likely to be well educated in agricultural techniques (Solomons, 2013). These urban populations often suffer high rates of poverty, food insecurity, lifestyle-related health issues including obesity and diabetes, and low levels of average food-related education (Solomons, 2013). Thus, implementing education programs in high-need urban communities that address food, nutrition, and health is of a particular concern in the United States (Robinson-O'Brien et al., 2009).

Inadequate nutrition and food related knowledge can adversely affect individual and community health. Participation in agriculture and nutrition education programs can help improve participant health (French & Stables, 2003, Robinson-O'Brien et al., 2009; Wyker et al., 2012). Completion of established programs has been correlated with increased food and nutrition knowledge, and fruit and vegetable consumption among individuals (French & Stables, 2003; Johns et al., 2006; McAleese & Rankin, 2007). Garden-based education programs have increased in number in the United States. These hands-on experiences with growing food, preparing food, and a source of fresh produce can improve food security in cities (Robinson-O'Brien et al., 2009). Moreover, urban gardeners consumed greater quantities of fresh vegetables as compared to non-gardeners, and lesser quantities of sweet foods and drinks (Blair et al., 1991). Programs that incorporate traditional intervention methods (formal learning environments) with garden-based or community-based intervention techniques may be more effective at enacting change among participant eating habits, and enhancing knowledge of food related topics (French & Stables, 2003).

The Academy of Nutrition and Dietetics, School Nutrition Association, and Society for Nutrition Education indicate that increased nutrition education through food and nutrition programs would be effective at increasing youth well being and eating habits (Briggs, 2010). Education programs focused on providing nutrition and food education have also been highly beneficial to low-income women In Minneapolis, MN (Rustard & Smith, 2013). The study intervention included educational sessions with both lecture and garden-based components, and reportedly increased personal health, improved knowledge of shopping and food preparation, and increased ability to cultivate crops through gardening experience. Wyker et al. (2012) found that focused nutrition education programs, such as the Supplemental Nutrition Assistance Program Education (SNAP-Ed) program may lead to enhanced health of participants through increased consumption of whole fruits and vegetables. It has been found that interaction between agriculture and nutrition educators and participants in these programs changes participant perceptions regarding healthy eating, growing food, and healthy lifestyle choices (Prelip et al., 2012). These multi-component (class and garden-based) urban agricultural and nutrition program examples increase general knowledge of healthy food acquisition and consumption, especially regarding fruit and vegetable consumption (Prelip et al., 2012; Robinson-O'Brien et al., 2009).

Other youth programs centered on a nutrition and agricultural curriculum have resulted in positive changes in participant diet and health (French & Stables, 2003, Robinson-O'Brien et al., 2009; Wyker et al., 2012). Participation in garden and school based education programs has largely been effective in increasing consumption of fruits and vegetables among youth participants, even doubling consumption (McAleese & Rankin, 2007). Nutrition and garden-based programs are a useful strategy for improving participant diets, and may offer the means to

increase consumption of nutrient-rich foods (Robinson-O'Brien et al., 2009). A multicomponent intervention (actions and educational programs implemented through in-school and extracurricular garden-related activities) found that elementary-aged participant fruit and vegetable consumption increased by up to .6 servings daily after completion of these programs (French & Stables, 2003). Another study of a nutrition and gardening program administered in three Idaho elementary schools reported considerable increases in vegetable and fruit by youth participants (McAleese & Rankin, 2007). Those involved in the nutrition education program only increased vegetable and fruit consumption 2.1-2.2 servings daily, while those also engaged in the gardening program ate 1.9-4.5 more servings/day (McAleese & Rankin, 2007). Children enrolled in nutrition and gardening programs positively influence the eating habits of adults at home (Heim, 2011). The skills and knowledge gained from youth agriculture and nutrition education programs positively influence both parent and child eating patterns and food choices (Heim et al., 2011). Involvement of youth in garden-based food and nutrition programs increased the availability of fruit and vegetables in the home environment (Heim et al., 2011). In fact, food attitudes of 50% of parents with children enrolled in the Delicious and Nutritious Garden Program were highly influenced by the new information being taught to children in the program (Heim, 2011).

Similar programs centered on low-income individuals have reported improvements around healthy eating habits and knowledge relating to food. The involvement of low-income women in garden and lecture-based agriculture and nutrition education programs has led to instances of increased fruit and vegetable consumption, increased knowledge of healthy cooking, and decreased care-related health problems (Alaimo et al., 2008; Rustard & Smith, 2013). Another study conducted a phone survey to determine vegetable and fruit consumption among

urban gardeners in Flint, MI (Alaimo et al., 2008). Adults in a household with an urban grower consumed 1.4 times more vegetables and fruit per day, and were 3.5 times more likely to consume fruits and vegetables five times per day.

The involvement of children, youth, and adults in combined urban agricultural and nutrition education programs has led to increased awareness of nutrition, healthy versus unhealthy food selections, and the ability to prepare unprocessed foods (McAleese & Rankin, 2007; Townsend et al., 2006). The expanded USDA Food and Nutrition Education Programs for low-income youth led to gains in participant awareness of food preparation safety, nutrition, and healthy food selection (Townsend et al., 2006). In addition, urban agriculture and nutrition education programs enhance the health and consumption patterns of adults, providing a source of food, and related knowledge (Alaimo et al., 2008; Bauer et al., 2011; Rustard & Smith, 2013). These programs can increase food security and availability of nutrient-dense foods within the surrounding community, and participant homes (Heim et al., 2011; Robinson-O'Brien et al., 2009; Rustard & Smith, 2013). Urban agricultural and nutrition education programs can provide tools and knowledge to positively affect the health, consumption patterns, and ability to prepare and acquire food by youth and adult participants.

PROJECT METHODOLOGY

Restatement of Project Objectives

This study was undertaken to: 1) identify similarities and differences between participant objectives and the stated program objectives; 2) determine key program impacts on participants; and 3) generate programmatic recommendations.

Targeted Population

Participants that regularly attended the Green Tomorrows program and CGCF staff were the target population with this study. Staff members included as study participant were personnel identified by the ED as being directly involved in program development and implementation. Staff selected included the ED-Rachael Callahan, Farm Manager (FM)-Anita Adalja, Green Tomorrows Coordinator Terri Acker, and AmeriCorps VISTA assigned to CGCF Polly Fairfield.

Green Tomorrows participants that regularly attended the program within the last two program cycles were identified by staff members as good candidates for interviewing. Common Good City Farm considered participants that attended at least three of the four monthly sessions each month during the program cycles to have been regular attendees. One program cycle lasts from May through October. Staff members identified participants that regularly attended program meetings, and fulfilled the tasks required for satisfactory program completion. Five participants of the Green Tomorrows program were interviewed and only 1 participant requested anonymity.

Project Study Design and Procedures

A case study approach was taken using semi-structured interview tools. To explore and compare participant and staff experiences and attainment of goals within the Green Tomorrows program, two guided interview instruments were developed. After approval was obtained from Virginia Tech's Institutional Review Board (IRB) (Appendix A), staff and program participants were identified as interview candidates for this study. They were informed of the study purpose and objectives and asked to participate with signed consent (Appendix B and C). Appendices D and E include the guided interview questions used for program staff and program participants,

respectively. Each interview guide included a pre-interview introduction that was read to interviewees.

Staff interviews included questions that illustrated: 1) Staff's background and interest in urban agriculture and working at CGCF; 2) Role/s that they filled in the Green Tomorrows program, services they provided to participants and the farm, and how their role contributed to the successful facilitation of the program; and 3) Program goals, personal goals for the program and participants, aspects of the program they considered most and least beneficial to participants; and 4) How they believe participation in the program by enrollees affects their lives. After informed consent was obtained, interviews with staff members required up to 90 minutes to complete, and took place at CGCF facilities or the interviewee's place of residence.

Participant interviews aimed to establish: 1) Participant background, area of residence, source of program referral, and motivations for enrollment; 2) Experiences, services, and assistance received, and aspects of the program they found particularly useful or unhelpful; and 3) How the program affected participant food security, knowledge of nutrition, food preparation, food budgeting, growing food, personal health or diet, and how participants utilized and will continue to utilize gained skills and knowledge after program completion. After informed consent was obtained, interviews with program participants required up to 45 minutes to complete, and took place at CGCF facilities, or the interviewee's place of residence.

All interviews were audio recorded to allow for transcription after the completion of the interview. After interview completion, data was transcribed and analyzed, and interviewee's that requested anonymity had identifiers removed. Qualitative data from the interviews were synthesized into common and similar findings between staff and participants and Green Tomorrows program recommendations. Interview transcripts were subsequently analyzed to

find similarities and differences between the realized participant outcomes, and the stated objectives of the program. Additionally, this analysis identified key findings about project impacts upon participants.

Data Analysis

Responses to interview questions were transcribed and then tabulated. Answers given by staff and program participants were categorized by interview question. Comparisons between subject answers were made for each question asked during interviews. Through these comparisons, parallel and dissimilar themes were discovered among interviewee answers. These themes were then utilized in the analysis to determine if similarities and difference existed between participant objectives and the stated desired program objectives, how staff and participant attitudes towards the program differed or were comparable, and how the program significantly impacted program participants. The significant revealed themes were then employed to generate programmatic recommendations.

RESULTS

A total of nine interviews (4 staff and 5 participants) were conducted for this study during February and March 2014 using interview scripts for staff (Appendix D) and participants (Appendix E) after consent was obtained. All staff consented to share their names in reporting while one out of five of the participants declined. The primarily qualitative data for the staff and participant interviews is organized by the structure of the respective interview script. Staff findings are categorized into the following sections: 1) Background, 2) Roles Filled and Services Provided Within Green Tomorrows, and 3) Program Goals and Outcomes. Similarly, participant interview data are presented according to these sections: 1) Background and Program Referral and Enrollment, 2) Participant Experiences and Services Received, and 3) Section Three:

Participant Outcomes. Tables 1 and 2 include the guided interview questions for program staff and program participants, respectively.

Table 1. Green Tomorrows Staff Interview Questions

<p>Part 1: Background</p> <ol style="list-style-type: none"> 1. What is your current position at Common Good City Farm? <ol style="list-style-type: none"> a. How long have you been in this position? b. Can you provide a brief overview of what you do at work? 2. I would like to understand why you ended up in this area and position: <ol style="list-style-type: none"> a. What were you doing before you became involved here? b. What led you to this job? 3. Why did you decide to seek employment/involvement with Common Good City Farm?
<p>Part 2: Green Tomorrows – Description of Role & Services</p> <ol style="list-style-type: none"> 1. What role/s do you fill in the Green Tomorrows program? 2. What services do you provide to participants and to program facilitation/management? 3. How does fulfilling this role contribute to meeting the stated goals of the program?
<p>Part 3: Goals and Outcomes</p> <ol style="list-style-type: none"> 1. What are the stated goals of the Green Tomorrows program? 2. What are your goals for the program? Do they differ from the institutionally stated goals of the program? What do you hope for participants to achieve? <ol style="list-style-type: none"> a. What practices do you believe worked best to achieve these goals? In what ways? b. What practices do you believe you would change to better achieve these goals? In what ways? 3. I would like to know how Green Tomorrows may enhance the lives of participants. How do you believe Green Tomorrows affects participants? <ol style="list-style-type: none"> a. How does it affect participant food security? b. How does it affect participant knowledge of nutrition, food preparation, food budgeting, and growing food? c. Do you believe this program affects the local community? How?

Table 2. Green Tomorrows Participant Interview Questions

<p>Part 1: Background, Referral, & Enrollment</p> <ol style="list-style-type: none"> 1. Where do you reside? 2. What is your occupation? Can you provide me with a brief overview of what you do at work? 3. How did you hear about the Green Tomorrows program? 4. Why did you decide to participate in Green Tomorrows?
<p>Part 2: Participant Experiences & Services Received</p> <ol style="list-style-type: none"> 1. What types of services/assistance have you received through the Green Tomorrows program? 2. Are there any aspects of this program that you found particularly helpful to you? 3. Are there any aspects of this program that you would change to make it more useful to you? 4. Would you encourage others to participate in Green Tomorrows?
<p>Part 3: Participant Outcomes</p> <ol style="list-style-type: none"> 1. With that in mind, how has this program affected your/your family’s access to fresh and affordable produce? 2. How has this program enhanced your/your family’s understanding of: <ol style="list-style-type: none"> a. Nutrition b. Food budgeting c. Growing food d. Preparing food or meals 3. Has this program in any way changed your outlook on food and/or diet? If so, how? 4. How have, and will, you/your family use the skills and knowledge gained through this program in the future?

Green Tomorrows Staff Interviews

Four staff members of the Green Tomorrows program, and more broadly of CGCF, were interviewed for this study. Staff responses are summarized in Table 3 and briefly describe staff positions, motivations for working with the program, and roles and services provided by the staff to program participants and program facilitation and management.

Table 3. Summary of Staff Interviews: Position, Motivations, and Roles and Services

Staff	Motivation	Roles/Services
<i>AmeriCorps VISTA</i>	Interest in urban agriculture, community building, and CGCF’s programs and community outreach	Data collection, food distribution, workshop coordination, and program facilitator and support
<i>CGCF ED</i>	Urban agriculture interest, CGCF’s programs, food production and distribution as a community development model for food security	Hiring and management of employees, volunteers, and interns, budget oversight, funding solicitation, program and staff development, and engagement of participants
<i>Green Tomorrows Coordinator</i>	Interests in food security issues, community building, enhancing local levels of education, and CGCF’s community outreach	Program participant recruitment and engagement, educator recruitment, workshop facilitation, food distribution, data collection, and hands-on farm work support
<i>CGCF FM</i>	Interests in urban agriculture, food security issues, community building, and CGCF’s community outreach and food production and distribution	Agricultural educator, directing hands-on farm work, workshop facilitation, and participant recruitment, crop cultivation and distribution to those individuals, CSA and restaurants, coordinated volunteers, youth in our after school program and summer program, and Green Tomorrows programming

Staff Interview Part 1: Background

Select comments from each staff describe their motivation for working at CGCF:

AmeriCorps VISTA:

“I ended up at CGCF because VISTA specifically deals with poverty related issues, so I just researched farms in the D.C. area, and this one met my specifications because it had a lot of cool programs, and I like the way it is involved with community.”

ED:

“I think is most interesting about CGCF is the amount of food that is able to be produced there. For an urban area and for the other farms and gardens that exist in Washington DC it is comparatively a big space, and the space is being used really well to grow food.”

Green Tomorrows Coordinator:

“What was most attractive about CGCF was its dedication to develop the surrounding community through educational programs and the outreach.”

FM:

“Just seeing that change in diet and them having access was really inspiring to me, and also I became interested in sustainable agriculture and different urban initiatives. So that’s what got me interested in growing food. The position combined both my community building and social work interest and passion, but also sustainable agriculture, in that urban space there, and working directly with the community at-large. I also liked the 85 [%]-15 [pounds] distribution model where 85% of what was grown was distributed within the community.”

Staff Interview Part 2: Roles Filled and Services Provided Within Green Tomorrows

The AmeriCorps VISTA member filled a role as a data collector, food distributor, and workshop coordinator for the Green Tomorrows program. In addition to data collection on participant attendance and food distribution, they assisted with workshops planning and teacher and facilitator staffing. Their support ensured that the educational goals of the program were met. Furthermore, they indirectly enhanced participant food security through food cultivation and food distribution.

In tandem to the role’s highlighted in Table 1, the ED actively engages or facilitates conversation with staff about program status and improvements, and regularly interacted with participants during workshops: *“If the workshop was being held at a picnic table, I would be*

sitting there at the picnic table asking questions of the instructor, sort of because the topics were interesting to me, but also to prompt conversation.” She felt this contributed to cultivating a stronger community, one of the stated program goals that resulted in more impactful programming:

“Take-home knowledge would translate into lifestyle change. The goals of the program were better met because participants didn’t feel disconnected and anonymous, but, rather that their participation is really important to making what we do successful, and that we care about them.”

The Green Tomorrows Coordinator was the primary link between participants and workshop facilitators, and programming. They recruited participants from the surrounding community to attend workshops and join the program, noting that they also attempted to ensure continued attendance by participants throughout the program cycle. They helped to lead and support workshops and participants, saying, *“I facilitated, I distributed the food, and I facilitated meetings on growing things and food demonstrations.”* When necessary they helped with farm operations including crop maintenance. Moreover, they directly assisted participants by providing resources outside of the farm that would augment their food security, *“when people needed specific things, say if they didn’t have food, I would give them information about food banks in the city, I told them about the Food Finder here in DC.”* As the program’s coordinator, they made sure the educational goals were met. They took pride in connecting the community and participants in a way that aligned with the program’s goals, asserting that, *“I did the very best that I could to bring people to the program, and build a reputation in the community of the farm.”*

The FM at CGCF role as described in Table 1 involves connecting the Green Tomorrows participants with hands-on agricultural concepts and skills to grow produce. Directly engaging participants on the farm meant they had opportunity to *“work alongside participants and had educational lessons or workshops along the way, while really trying to teach people how to grow food when they were on the farm.”* While completing farm tasks they established relevant dialogue, discussed the finer points of cultivating food, and other food related topics,

“Through that hands-on work we usually had a lot of engagement about what we were doing, how it related to farming, and how it could be applied directly to a home garden. It was also often a lot more discussion around growing food in general, and health and nutrition, and the particular tasks we were doing at the time. I think that me constantly being on the farm, being a face that they were used to seeing, and being reliable, I think that helped with the tension over the season. We created a relationship with the participants, so I think that helped.”

Both their regular presence on the farm and their recruitment of neighborhood participants, created an atmosphere that led to the higher engagement of participants in program activities.

Staff Interview Part 3: Program Goals and Outcomes

The stated goals of the Green Tomorrows program are to develop participant’s skills related to growing produce in urban areas, including their nutrition knowledge nutrition, food preparation, and food budgeting, as well as increase participant levels of food security. Staff were able to consistently identify these program goals. The VISTA volunteer, ED, and FM relayed the following comments respectively, *“program was a tool to educate those people, and expose them to new ideas, like eating healthily, how to grow your own food;”* *“provided hands-on education about sustainable farming;”* and *“empowered people to grow their own food and*

eat healthy and be educated about the food they are eating, and where it comes from.” The majority of staff members also considered that enhancing food security through the food distribution program was an explicit goal as illustrated by staff, VISTA, *“I think a lot of it was trying to distribute food into the community to people who needed it;”* ED, *“the stated goals are to increase food security for low-income, or qualifying income residents;”* and FM, *“one of the main ones (stated goals of the program) is to distribute food within the community.”*

In addition to the stated goals of the program, program staff believed that, that participant exposure to the farm was an implicit goal of the program.

“It was a lot about getting people to come to the farm and interact with people at the farm” according to the VISTA. They stated that these on the farm experiences expanded participant horizons and “helped in getting a lot of people to come to the farm, and expose them to something that they maybe weren’t familiar with before.”

All staff found that their personal educational goals of the program, especially related to nutrition education were similar to the stated goals of the program as validated by staff comments:

ED: “I adjusted my personal goals to really emphasize the educational component of that. I really wanted the participants to get the most out of their time either hand-on working of the farm, or at a workshop,” and “I really wanted to present information that would be easy [for participants] to take home, easy to be a lifestyle change.”

Green Tomorrow Coordinator’s personal goal was for participants to lead healthy lives and that the program’s educational components were instrumental in achieving that, *“I want them to achieve better health and nutrition skills the most... having the food demonstration helps. You can’t tell people ‘you’re not supposed to be eating that, eat this’, and then not show them how to*

do it.” They were interested in nutrition education and exposure to produce, and how it could encourage lifestyle changes in participants.

Another reoccurring goal that all staff members indicated as important was increased participant food security through the food distribution program. Development and engagement of the local community was also mentioned by all of the staff members as an important goal of the program. The ED mentioned, *“something not explicitly stated in the goals is ... building that sense of community. I believe that’s a means to the end to make sure people are getting the most they can out of the educational component.”* The FM noted that the citizens of LeDroit Park were most in need of the program, and that CGCF was truly committed to helping the food insecure of the neighborhood. Everyone was aware of the stated goals and believes they guided community development.

Program Practices: Workshops

Certain workshops were effective in achieving program goals. All staff indicated that the food demonstration workshops were successful in exposing participants to healthy foods and cooking techniques. In fact, the FM said, *“we had food demonstrations using very ordinary ingredients, but cooking them healthily. I think those were really successful.”* Both the ED and VISTA described that the interactive nature of food demonstrations with food tastings were most popular and attracted participants and also allowed transfer of cooking skills acquired to make healthier foods at home. Staff also reported that the health and nutrition workshops imparted knowledge and skills that could help to improve participant health and diets related to diabetes and health problems like high blood pressure. The canning and container gardening workshops were also successful in conveying skills and information, particularly because there were products that the participants could take home with them. Other workshops covering how to

make healthy and economically responsible choices in a grocery store taught participants about food budgeting and nutrition. The VISTA revealed that the recipes distributed to participants helped them incorporate more fresh produce into their cooking, and said, *“If we’re giving out types of vegetables that people aren’t familiar with, we always give information sheets on how best to prepare those.”* Food distribution was also noted as an important practice in initially drawing participants to the program, as well as introducing them to healthy eating and cooking, as well as nutritional concepts. Most staff agreed that participants being given access to fresh healthy food to take home motivated them to continue returning. Practices that staff believed best helped to achieve program goals were food demonstration and health and nutrition workshops, and food distribution.

Proposed Program Changes

When asked what changes could be made in program practices to better achieve program goals, all staff members identified alterations related to workshops. Workshops that better target participant needs and interest and provide the most valuable take home skills were noted as important. Green Tomorrow’s Coordinator agreed that workshops should be better planned and suggested that compensating workshop facilitators would attract higher quality educators. The FM also mentioned that some workshop topics (beekeeping, composting, and drip-tape irrigation) were irrelevant to participants, as they were unlikely to utilize the knowledge outside the farm. Some staff members said they would reach more community members and achieve program goals better if more workshops were conducted in the LeDroit Apartments where seniors live.

Level of participant engagement was also described as a major area of concern, and as an impediment to achieving program goals. A lack of regular attendance meant that participants

missed workshops, activities, and food distribution. Of particular note was that participants were unwilling or disinterested in the hands-on agricultural work. Again the FM found it to be a struggle to ensure consistent attendance and engagement with participants noting that, *“finding a way to be more consistent would have been good. There’s definitely a constant struggle to figure out a way to do that, and also matching up with people’s schedules. It’s difficult (to increase consistent attendance).”* She and other staff interviewed mentioned implementing a mandatory attendance policy or offering a small stipend to regular attendees might alleviate irregular attendance. Most commonly, staff member believed that program goals would be better met if workshops were concentrated on subject matter more relevant to participant needs and regular attendance of participants was incentivized.

In general, staff thought that exposure to the farm, and new concepts and experiences imparted through program activities enhanced the lives of participants on some level. Simply being immersed in the farm’s environment was seen as beneficial in developing minds, and enriching participant lives through the exposure to new ideas. The ED stated *“I think that whether or not lifestyles are actually changed, I think that exposure to the idea is very powerful.”* All staff members believed that program participation helped to enhance participant food security. According to the ED program surveys and conversations with staff, *“an overwhelming majority of participants felt that they were more food secure because of their participation in Green Tomorrows program.”* They said this was primarily due to the weekly food distribution of fresh produce. Staff agreed that food security could be further enhanced through the increased availability of grocery money not needed to buy store produce.

Other Impact on Participants

Food preparation skills of participants improved after program completion. Enhanced food preparation skills were observed by staff as being one of the most successfully achieved program goals. Workshops focused on cooking skills also helped participants eat more healthily. The exposure to new foods (vegetables) and cooking techniques made participants more comfortable with eating fresh produce, as it removed the intimidation factor of cooking unfamiliar food. According to staff, participants understanding of healthy eating and lifestyles improved as a result of the nutrition knowledge acquired from the program to make positive dietary changes. The ED noticed a behavior change in a specific participant who initially hesitated to consume nutrient rich produce. After learning the health benefits, they began to eat more healthily. This individual returned to CGCF the next year and became a program advocate because the program's educational components transformed their life and eating habits. Other staff believed the nutrition education and healthier food preparation techniques taught to multiple participants with diabetes and other diet related conditions could only benefit their overall health. A greater understanding of food budgeting was often seen in participants by staff which led to healthier and affordable shopping techniques. As related by the FM,

"We had a few workshops about shopping and cooking on a budget, stretching your food stamp dollar, that kind of thing. I'm pretty sure because they were given a lot of tools, like how they could shop more effectively with the money, and that helped."

Another workshop on utilizing SNAP benefits in ways that allowed access to more healthy foods benefited participants too. The VISTA mentioned, *"A lot of people at the workshop didn't know about this before, so it was providing valuable information that they could use, because a lot of them do have SNAP benefits."*

The attainment of agricultural skills and knowledge by participants was mentioned as the least satisfactorily met program goal by staff. A lack of interest in participating in hands-on farming activities by many participants was noted as a reason why many did not attain great agricultural knowledge or ability. With the exception of a few participants who sought out the ability to grow food in urban areas, most participants did not acquire substantial agricultural skills.

Green Tomorrow's Impact on Local Community

The local community was affected by the Green Tomorrows program according to staff, although two believed that there was room for more community engagement. The farm being one of the only green spaces in the community was seen as a positive force in LeDroit Park as validated by the ED,

"I think the farm in general certainly has an impact on the community. I think that seeing green space and seeing food growing, whether or not community members actively participate in the farm, I think that's got to have a positive impact on them."

Other staff also heard this echoed by community members, and remarked, *"I think that it really impacted the community in the sense that it was a green space, which the community was definitely lacking, and people were able to come on and participate."* The surrounding community was also impacted by the cultivation and distribution of food. The ED believes that the farm is focused on being increasingly inclusive of all community members: *"I think that what we're doing as an organization is continuing to find ways that we can engage the community so that food and access to food becomes more part of that equation."* Similarly the FM echoed that this neighborhood-wide inclusive food distribution was worthwhile,

“Because the program is catered towards people in the community, it’s free participation, and the produce is being distributed to them, I think it really affects the local community. One of the things I like to say about Common Good is that it’s an edible community center.”

In general, food and the farm space built cohesion in the community. Per the FM, *“the impact of the program went way beyond food access.”* It is the hope of the ED that the continued presence of the farm and the Green Tomorrow program in LeDroit Park will help solidify a community that has traditionally been divided, observing that,

“I think that is going to be interesting to see how that plays out in our neighborhood that has tensions, and people generally feel they can tell which side a person falls on based on looking at them, and I think that taking that away on our farm, it will be interesting to see how that maybe goes outside the fences of our farm.”

Other staff agreed that as the program moves forward this interest in community building will become an even larger part of the overall goals, stating that, *“I think that that (increasing community interaction) is a huge goal of the program.”*

Green Tomorrows Participant Interviews

Five regular participants of the Green Tomorrows program were interviewed using questions from Table 2. This section follows the structure of the participant interview script (Table 2; Appendix E).

Participant Interview Part 1: Background and Program Referral and Enrollment

All five participants interviewed were African American women. Table 4 briefly summarizes participant housing and employment situations, how they heard about the program,

why they decided to enroll in the program, and what their eating habits were prior to program participation.

Table 4. Summary of Participant Background and Program Referral and Enrollment

Participant	Current Habitation	Current Employment	Program Awareness	Reason for Participation	Eating Habits Prior to Program
P1	LeDroit Apartments	Unemployed Disability	Printed advertisement	Vegetable distribution	Ate fewer vegetables
P2	LeDroit Apartments	Unemployed Retired	Printed advertisement, word of mouth	Exercise and increase in activity	Similar before and after
P3	Apartment: Washington D.C.	Employed National Resource Defense Council	Internet advertisement, CGCF volunteering	Learn about agriculture	Similar before and after
P4	Kelly Miller Housing	Unemployed	Word of mouth	Learn about agriculture, vegetable distribution	Ate fewer vegetables
P5	LeDroit Apartments	Unemployed Disability	Viewed program in progress	Enhance education	Ate fewer vegetables

Participant Interview Part 2: Participant Experiences and Services Received

Services and Assurances Received

Most interviewees indicated the workshops offered by the Green Tomorrows curriculum significantly impacted them. Among the workshops frequently mentioned were 1) the food demonstration workshops, in which participants learned about produce cultivated on the farm and how to incorporate that produce into healthy meals; and 2) the canning workshop –taught participants how to preserve foods through canning recipes and techniques. Participants P2 and P5 indicated they acquired new cooking skills through the food demonstration workshops, with P2 saying, *“I just really loved being around good food, and learning how to cook, learning how to make things I don’t know how to cook.”* Two participants claimed they would continue to use the canning methods they acquired. Another service valued by interviewees was the weekly

distribution of up to 15 pounds per week of vegetables to each participant. This enabled some of them to eat a wider variety of fresh vegetables, diversifying their diets. As will be discussed later, the vegetable distribution also resulted in increased vegetable consumption and enhanced food security of some participants. Recipes that focused on the healthy preparation of fresh produce were distributed through to participants, and were noted as still being in used by some participants after program completion. Interviewee P3 shared that the agricultural skills and knowledge imparted to them was helpful, and that they planned on utilizing them by growing vegetable and herbs at home. The most commonly cited services and assistances received by program participants were the food distribution and food demonstration workshops.

Helpful Aspects of the Program

When asked about what aspects of the program were particularly helpful to them, participants offered a wide array of responses. One common response among all interviewees was their particular appreciation of the food demonstration workshops. Food demonstrations were recognized by participants as a way to learn how to produce healthy meals with fresh produce for their families and them, as stated by P2, *“I just really loved being around good food, and learning how to cook.”* The food demonstrations with food-sampling were cited as helpful and enjoyable by participants. Importantly, sampling allowed participants to try new types of produce. P1 said, *“a sampling was responsible for her first trying and continuing to eat kale”*, and P4 was open to eating tomatoes after a food demonstration. The food sampling resulted in P5 changing their shopping habits at the grocery store. They began purchasing the produce sampled. The canning and herbal workshops were also noted as being particularly helpful and interesting workshop topics for multiple participants. Three interviewees indicated that the agricultural skills and knowledge they procured through the workshop lessons were useful, and

as a result they were more skilled and confident to establish, maintain, and harvest plants. The most commonly mentioned aspects of the program identified as helpful by participants were the food demonstration workshops and associated food sampling, the canning workshop, and the conveyed agricultural skills and knowledge.

Desired Changes to the Program

Participants were asked for opinions regarding aspects of the program they would change to better serve future participants. Two interviewees indicated that they would change or enhance qualities of the workshops that were provided. For example, P4 indicated it would be useful to expand the number and timing of workshops offered to make the program more accessible to potential participants with schedule conflicts. They also believed workshops could be better stocked with materials or supplies, as the lack of materials limited the number of participants. Another suggested program change related to better services for senior citizens, especially those with limited mobility, by conducting workshops on the premises of nearby public housing:

“Some seniors are too disabled to come over to the farm, so I feel it would be good if they came from the farm and did demonstrations sometimes. I want them to come over to the building (LeDroit Apartments) more.”

Participants believed that improvements such as instituting attendance requirements, and advertising the programs would lead to increased regular involvement and participant recruitment. The most frequently recommended changes to the program were expansion the variety of vegetables cultivated on the farm and the aforementioned changes to workshop protocol and offerings.

Program Referrals

Participants were asked if they found the program to be beneficial or enjoyable enough to encourage others to participate. All five interviewees indicated that they would theoretically recommend program participation to other people. Of those five, two indicated that they had already referred one or more people to the program, while the other three had yet to do so.

Table 5 summarizes the most common responses given by participants when asked about experiences and services received through the program. This also includes aspects of the program they found most helpful, as well as aspects they would change, and if they would, or have, encouraged others to participate in the program.

Table 5. Summary of Participant Experiences and Services Received

Most Common Responses	
Services and Assurances Received	Vegetable distribution Program workshops
Beneficial Program Aspects	Food demonstrations Canning workshops Food sampling Agriculture skills and knowledge
Program Aspects to Change	More workshop offerings Expand vegetable variety grown
Encourage Others to Participate	All = yes
Referrals	Two = yes; three = no

Participant Interview Part 3: Participant Outcomes

Participants of the Green Tomorrows program were asked to reveal what impacts participation in the program had upon them. Questions were focused on illuminating if participants outcomes paralleled the desired participant impacts as outlined in the stated goals of the program. Table 6 summarizes the most common responses given by participants when asked about specific desired outcomes of the program. The questions were intended to reveal actual outcomes regarding how the program affected: access to fresh and affordable produce;

participant health; participant grocery shopping habits; participant involvement in growing plants for food post-program completion; changes in food preparation at home; outlook on food and/or diet; and, intentions of being involved with urban agriculture.

Table 6. Summary of Participant Outcomes

How the Program Affected Participants?		Participant Quotes
Access to Fresh and Affordable Produce	Changed diet, increased vegetable consumption	<ul style="list-style-type: none"> ▪ <i>“It has changed my eating habits; it made it more accessible to fresh vegetables.”</i> ▪ <i>“Definitely it has affected our access to fresh produce.”</i>
Health	Eating CGCF vegetables Mindful of diet now	<ul style="list-style-type: none"> ▪ <i>“When I was eating the vegetables from over there because they were fresh and I had them, I felt like I was healthier.” “It let me be more careful about what I eat.”</i>
Shopping Habits	More available money for groceries; knowledge of healthy foods Buy more fruits and vegetables	<ul style="list-style-type: none"> ▪ <i>“...free up more money to buy other things...”</i> ▪ <i>“It kind of kick started me to actually buy vegetables when I go shopping,”</i> ▪ <i>“I think we’re getting more vegetables now.”</i>
Willingness to Grow Plants for Food	Growing food at home	<ul style="list-style-type: none"> ▪ <i>“[Growing] some collards, corn, watermelon, corn, and catnip.”</i> ▪ <i>“I started growing some parsley and basil.”</i> ▪ <i>“What I’m going to do very soon is a little kitchen herb garden.”</i>
Home Food Preparation	Increased vegetable consumption Healthier cooking Use CGCF recipes	<ul style="list-style-type: none"> ▪ <i>“...persuaded me more to cook and even if I’m not cooking a big meal, there’s always something simple I can cook really quickly that’s just as healthy. It made me cook more.”</i> ▪ <i>“I try to cook and eat vegetables now.”</i> ▪ <i>“I learned how to cook healthier.”</i>
Outlook on Food and Diet	Mindful of diet now Knowledge of healthy foods and diet	<ul style="list-style-type: none"> ▪ <i>“I eat with less salt and more vegetables.”</i> ▪ <i>“It changed the way I eat because I eat more vegetables and fruit.”</i> ▪ <i>“I am more careful about what I eat. I try to keep myself healthy.”</i>
Continued Involvement with farm or gardening	Growing food at home Attend workshops Volunteer on the farm	<ul style="list-style-type: none"> ▪ <i>“I’ll pass it on to my daughter and grandkids.”</i> ▪ <i>“I would love to still go to the farm. I still want to do the demonstrations.”</i> ▪ <i>“I want to grow more things.”</i>

Access to Fresh and Affordable Produce

When asked if program participation resulted in changes to their eating habits or their families, all five interviewees responded affirmatively. Additionally, all five staff echoed these sentiments, and believed that program participation positively impacted participant access to fresh and affordable produce. P2 indicated positive changes in their family's diet, consuming more vegetables due to the food distributed through the program. This sentiment was echoed by P4: *"It has changed my eating habits; it made it more accessible to fresh vegetables."* Overall, the most prevalent dietary change was increased vegetable consumption, as a result of produce provided through the program. Increased access to fresh produce was a positive effect of program participation, and particularly important to participants living in LeDroit Park. Participants also noted having more available money for food shopping due to money saved by receiving free produce from the farm weekly. As shared by P4, *"it helped me because I don't have to spend as much of my money on fresh foods at the grocery store, and whatever I get from there (the farm), I can build around that from what I would buy."* All interviewees indicated that to some degree program participation positively affected their access to fresh and affordable produce, and led to improved diets, mainly through increased vegetable consumption.

Health

One goal of participation in this program was to enhance participant's nutrition knowledge to promote healthier lifestyle choices. When asked if they believed if their health or family's had been enhanced, all five interviewees answered positively. Three of four staff members interviewed saw definitive improvements in some aspect of participant health as well. Feelings of improved health were mostly attributed to the consumption of vegetables produced on the farm. P1 attributed their enhanced health to CGCF vegetables, *"when I was eating the*

vegetables from over there because they were fresh and I had them, I felt like I was healthier.”

Similarly, P5 indicated they ate healthier due to program participation while the other interviewees expressed an increased mindfulness of diet. P2 felt like the program helped them to be cognizant of healthy consumption patterns, which positively affected her diet, remarking, *“It let me be more careful about what I eat, and what I don’t eat.”* Participants most commonly cited increased mindfulness of their consumption patterns and the addition of CGCF vegetables into their diets as contributing factors towards enhancing their personal health.

Grocery Shopping Habits

When participants were asked if their food shopping habits changed after program completion, all five answered they had changed the way they shopped. Increased knowledge of healthy foods led to the changes in food shopping methods. All interviewed staff also reported hearing of changes in participant shopping habits, including the purchasing of more fruits and vegetables. As disclosed by P4, *“I always knew about alternatives and stuff, but just to make it even healthier I tried to put it [nutrition knowledge] all together,”* and P2 was able to use this knowledge to shop more intelligently, remarking that she now knew what was healthy to eat and tried to buy those items. This new nutrition knowledge led to most interviewees buying more fruits and vegetables when they went grocery shopping. P4 thought that it changed her mindset about shopping, saying, *“it kind of kick started me to actually buy vegetables when I go shopping,”* resulting in increased availability of produce. This change in behavior was reiterated by most participants. Vegetable distribution through the program was mentioned as affecting grocery budgeting too as funds previously used to buy produce were freed up. This similar sentiment was confirmed by P3 when she asserted,

“When I’m in the program for the summer time I can free up more money to buy other things, because I don’t necessarily have to buy vegetables that week. So it does help for budgeting purposes to buy other things you need anyway, as opposed to having to buy lettuce or something like that.”

The interviewees indicated that enhanced knowledge of healthy foods and more available money for groceries prompted changes in their shopping behaviors, ultimately leading to the buying of more fruits and vegetables.

Growing Plants for Food

Through hands-on and workshop education, program participants were to gain skills and knowledge that would enable them to cultivate food in urban spaces. They were asked if they had grown plants for food off the farm or continued to work with plants on the farm since the completion of the program. All but one interviewee indicated that they had practiced agriculture in a hands-on manner by growing food. Four that mentioned they were still involved with growing food at home. One participant indicated she was maintaining and cultivating a plot at the LeDroit Community Gardens, which she planned on seeding with, “[growing] some collards, corn, watermelon, corn, and catnip.” Three staff members also mentioned that participants had shared with them stories of growing food either in the community garden, or more frequently, by utilizing the container gardening systems they had been provided through the program. Most interviewees were continuing to work with plants through growing herbs using what they had learned during Green Tomorrows agricultural workshop.

Food Preparation

As a result of the information and skills acquired during the program all five interviewees stated they now prepare food in a different way at home. Many mentioned that they were

cooking more, and in a healthier way. P5 stated, *“I don’t use a lot of salt, I learned how to cook healthier,”* whereas P4 said that program participation, *“...persuaded me more to cook and even if I’m not cooking a big meal, there’s always something simple I can cook really quick that’s just as healthy. It made me cook more.”* All four staff members interviewed indicated that participants had shared stories with them regarding the new healthy cooking techniques they were using, or had even tasted foods prepared by participants within their homes. The increased instances of healthy cooking were often attributed to the incorporation of more vegetables into meals. Another manner in which food preparation was influenced was the use of recipes that were distributed during cooking demonstrations. The recipes also led to the incorporation of new dishes composed of more nutrient rich foods into participant diets. The skills and knowledge that were attained by P4 regarding food preparation also led to their family eating more frequently at home. Prior to the program, *“we used to order out a lot. Whenever I wasn’t cooking dinner we would order out.”* Healthier food preparation techniques were mentioned as being practiced by all subjects, predominantly through integrating more produce into cooking and using CGCF recipes.

Outlooks on Food and Diet

All interviewees believed that their outlooks on food and diet had changed. Most indicated that they had become more aware of healthy foods and eating, which in turn led to them being more mindful of their consumption patterns. Additionally, all staff believed that participants had too become more aware of healthy diets and lifestyles due to program participation. P2 believed they had become more cognizant of the eating choices they were making post-program completion, while P5 noticed that, *“I eat with less salt and more vegetables.”* P1 was more open to trying new healthier foods, observing that their eating

patterns had changed, and they consumed more vegetables. The program led to some participants being more in touch with the food system they found themselves in, the way they interacted with it, and how it affected them personally as indicated by P3, *“I think about access to food in general.”* P4 was able to gain perspective on their personal eating habits, relaying,

“I was already trying to change my diet as far as potassium, but it kind of brought me full circle. I love my fruits, go with my vegetables, and not eat too much starch, because I love my starches, I love rice. So balancing out my foods.”

Post-program Utilization of Skills and Knowledge Acquired and Interest in Continued Involvement with Urban Agriculture

All participants indicated a willingness and intention to utilize the skills and knowledge gained through program participation in the future. The majority of them stated they would continue to use their skills and knowledge by growing plants at home. All indicated they either intended to volunteer at the farm in the future, or take part in more of the offered programming. Two of the four staff members interviewed had seen participants return to be involved with the farm after the program had been completed, or had seen evidence of participants gardening at home. P4 affirmed their intentions of remaining involved with the farm specifically to grow crops while P3 expressed interest in participating in the herbal apprenticeship program now offered through CGCF. The importance of passing on the skills and knowledge gained from the program to others was mentioned by P5, *“I’ll pass it on to my daughter and grandkids.”* All participants indicated that they intended on utilizing the skills and knowledge they gained through growing food at home, and would remain connected to the farm through attending CGCF functions, and/or volunteering.

SUMMARY and DISCUSSION

Positive and Negative Perceptions of the Program - Participant and Staff

Staff and participants of the Green Tomorrows program were asked to reveal facets of the program they found most helpful in achieving positive outcomes, as well as describe aspects of the program they would have changed to attain positive program outcomes. Differing perspectives led to both distinctions and commonalities between staff and participant responses.

Positive Aspects of the Program

The various workshops offered through the program were beneficial in achieving positive outcomes for participants. Specifically, food demonstration workshops were reported by all as the most positive activities offered by the program. They described them as effective tools in exposing participants to new healthy foods and preparation techniques. Exposure to new vegetables in these workshops led many participants to continue eating these newly discovered foods, as well as buy them while grocery shopping. Staff also stated that they believed these workshops led to healthier eating and food preparation by participants. The introduction of these new foods, plus cooking techniques enhanced the participant's ability to create healthier meals at home, and theoretically adopt healthier eating habits. Food sampling evidence during the food demonstration workshops encouraged the incorporation of more vegetables in participant diets and shopping carts. There was agreement from staff and participants that the food sampling enhanced levels of participation and increased attendance rates. The container gardening and canning workshops were also identified by both groups as effective methods toward programmatic goal attainment. Interestingly, container gardening workshop enabled participants to replicate urban agriculture practices outside of the program and produce food at home post-program completion. Canning workshop provided a method of food preparation and

preservation that could increase participant access to healthy and affordable foods. Both of these workshops helped to provide valuable skills and knowledge that participants could continue to use after the program was complete.

Vegetable distribution through the program was consistently reported as significant by staff and participants. Produce distribution was effective in recruiting participants, as well as pivotal in ensuring sustained attendance. In addition, the distributed vegetables introduced new healthy foods into participant diets, and simultaneously educated them about healthy eating habits and food preparation techniques. It clearly led to increased vegetable consumption by participants as well. Both staff and participants believed that the vegetable distribution through the program led to the increased food security of participants and their families.

Recommended Changes to the Program

Interviewees agreed that certain changes to workshop content and practices could better serve participants. It was suggested that more topically focused workshops could better impart knowledge and skills that would be applicable to participant lives. Some workshop topics, such as beekeeping, drip-tape irrigation, and composting were seen as irrelevant to participants because they would not be able to apply these concepts readily after program completion. Workshops staffed by better-qualified teachers plus topics focused on relevant and applicable take home skills were suggested. Workshops focused on job-applicable skills were mentioned, as well as a continued focus on food preparation and container gardening. Additionally, it was recommended by both staff and program participants that more community members would be served if some workshops were held in LeDroit Apartments. This would allow senior participants that live in the building to have better access and be more involved in programming,

especially those with disabilities that prohibit them from attending many program sessions on the farm.

Participant engagement and attendance were seen as major hindrances to achieving program goals for participants. Absence from workshops and farm activities prevented participants from acquiring transferable skills and knowledge related to health and nutrition, food preparation and budgeting, and agriculture. Additionally, poor attendance resulted in missed food distribution, which could directly impact their food security. Both participants and staff noted the need to additionally incentivize attendance, which is paramount in reaching program goals and desired outcomes.

Key Findings on Participant Impacts

Garden and nutrition education programs that impart wisdom and skills through workshops and hands-on agricultural work can improve participant health and level of education (French & Stables, 2003; Johns et al., 2006; McAleese & Rankin, 2007; Robinson-O'Brien et al., 2009; Wyker et al., 2012). The Green Tomorrows program is intended to provide participants with skills relating to the production of food in urban areas, and knowledge regarding nutrition, food preparation and preservation, and food budgeting. In addition to these skill sets and knowledge, produce from the farm is distributed weekly to participants in exchange for program participation. This component of the program is intended to increase participant food security and health, and provide them with opportunities to practice food preparation techniques acquired in workshops. Participants were asked during interviews to what degree the program imparted these skills and wisdom, and staff were also questioned regarding participant outcomes relating to these program goals.

Food Security

Agriculture and nutrition education programs commonly increase the availability of nutrient-rich foods to their participants (Robinson-O'Brien et al., 2009; Heim et al., 2011; Prelip et al., 2012; Rustard & Smith, 2013). This was definitively seen among participants of Green Tomorrows. The distribution of produce through the Green Tomorrows program was done in an effort to increase the food security of participants and their families. Produce and knowledge of healthy eating provided through the program augmented the food supply of participants, their ability to utilize it healthily, and was able to enhance the diets of participants. Increased food security can lead to healthier diets, which in turn results in decreased instances of certain health problems, such as obesity, type-2 diabetes, stroke, hypertension, heart disease, and certain types of cancers (Meenar & Hoover, 2012; Pan et al., 2012). Diets richer in fresh vegetables and fruit and resulting enhanced health have been reported in similar studies of urban agriculture and nutrition education programs (Alaimo et al., 2008; Bauer et al., 2011; Rustard & Smith, 2013). Due to the produce (seasonal vegetables) provided, participants reported greater vegetable consumption when enrolled in the program, and felt it positively affected their health and diets. This is commonly reported in studies of nutrition and agriculture education programs, which generally lead to the increased consumption of fresh produce by participants (French & Stables, 2003; McAleese & Rankin, 2007). The availability of free produce through the Green Tomorrows program resulted in participants having more money available for other shopping needs. All staff members and participants reported that participation in the program led to the increased food security of participants, which is similar to other research findings. (Alaimo et al., 2008; Bauer et al., 2011; Heim et al., 2011; McAleese & Rankin, 2007; Robinson-O'Brien et al., 2009; Rustard & Smith, 2013; Townsend et al., 2006).

Health and Nutrition

Urban agriculture, and the programs associated with health and nutrition activities can lead to improved access to fresh, nutrient-rich foods for proximate community members (Kaufman & Bailkey, 2004). More specifically, participation in other agriculture and nutrition education programs has demonstrated improvements in health and diets of participants (French & Stables, 2003; Johns et al., 2006; McAleese & Rankin, 2007; Robinson-O'Brien et al., 2009; Wyker et al., 2012). The Green Tomorrows study participants reported similar results and associated these findings with increased mindfulness of diet and healthy eating habits gained through nutrition and health workshops. Clearly, other urban agriculture education programs acknowledge that increased awareness about what constitutes a nutritionally sound diet results in enhanced personal health of participants (Prelip et al., 2012; Rustard & Smith, 2013). Another factor that contributed to participant's improved health perspective was largely attributed to an increase in the consumption of vegetables grown and distributed at the farm. Participants shared that they felt healthier when eating the farmed, fresh vegetables, whereas staff observed increased instances of vegetable consumption as the program progressed and participant interest in eating vegetables increased. Other nutrition and agriculture education programs where participants increase consumption of fresh produce have reported similar positive influences on health (McAleese & Rankin, 2007; Prelip et al., 2012; Robinson-O'Brien et al., 2009). Likewise, Green Tomorrows participants perceived improvements in their health and were more aware of what constituted a nutritious diet because of their involvement with the program.

Food Budgeting/Shopping

Not only do agriculture and nutrition education programs increase knowledge regarding healthy food consumption, they also influence shopping habits of participants, promoting more

vegetables and fruits procurement (Prelip et al., 2012; Robinson-O'Brien et al., 2009). Increased knowledge of healthy foods, and how to gain access to these foods, led to changes in participant shopping habits. Participants confirmed that knowledge gained through workshops enabled them to shop more intelligently, whereby they purchased more fruits and vegetables. Involvement in similar programs has been illustrated to increase the availability of nutrient-rich foods in participant households (Heim et al., 2011). Additionally, a workshop focused on SNAP benefits helped participants, the majority of whom were enrolled in the SNAP program purchase healthier food items with their SNAP benefits. In this study, food distribution affected shopping habits, as the free produce resulted in additional funds being available to participants for other shopping needs. Program participation resulted in the modified shopping habits of participants and they were more likely to purchase fruits and vegetables post-program completion. The Green Tomorrows food distribution proved to be a practicable model to increase local fresh fruit and vegetable consumption among participants.

Involvement in Urban Agriculture

Urban agricultural or farming activities that include methods of growing food for local consumption (Kaufman & Bailkey, 2004) enable individuals to acquire skills to produce food themselves (French & Stables, 2003; Johns et al., 2006; McAleese & Rankin, 2007). These findings align with what was learned in this study with Green Tomorrow participants. While the acquisition of agricultural skills and knowledge were mentioned as the least satisfactorily achieved program goal, most participants did assert that they planned to apply the gardening knowledge and skills gained while at home. Most participants mentioned that they would utilize the materials given to them in workshops to grow vegetables at home, with most interest focused on growing potted herbs. Agricultural lessons that focused on growing plants in containers were

more popular than those focused on fieldwork. In addition, all participants mentioned that they intended to continue working with CGCF, either through volunteering on the farm, or enrollment in other farm programs. Although many participants indicated they would continue to utilize their acquired skills, the program's agricultural skills and knowledge component was consistently mentioned as one of the weakest aspects of the program. This was generally thought to be related to participants' disinterest in the hands-on fieldwork more than anything.

Food Preparation

Urban agricultural and nutrition education programs have been shown to successfully convey food preparation techniques, leading to increased, and healthier, eating at home (Robinson-O'Brien et al., 2009). Staff and participants noted that food preparation techniques of participants improved due to program participation. Participants felt they were able to produce healthier meals at home, as they were shown techniques for incorporating more vegetables, in a healthy way, into dishes through recipes and techniques acquired. Other similar urban education programs have had positive effects on participant food preparation capabilities (Rustard & Smith, 2013). Participants prepared a greater number of healthy meals at home due to program participation. Learning food preparation skills was noted as one of the most successful components of the Green Tomorrows program by staff and participants.

Outlook on Food and Diet

Those other programs that concentrate on teaching agricultural skills and nutrition knowledge have the ability to increase participant awareness of healthy diets and lifestyles (Townsend et al., 2006; McAleese & Rankin, 2007). This was the case for participants of the Green Tomorrows program who were shown to have a greater understanding of healthy foods and nutrition post-program completion. In turn, this knowledge led to mindfulness of diet, and

the adoption of healthier eating habits. Gilbert and Waltz (2010) reported in a study of mindfulness of diet, physical activity, and belief in achieving health goals among a pool of college students that increased mindfulness was correlated with the healthier behaviors of participants. As a result of program attendance, participants and staff reported that participants thought more about their consumption patterns, were more open to trying new healthy foods, and incorporated more vegetables into their diets. Embracing new and healthier diets that include more produce as a result of participation in an agricultural and nutrition education program is consistent with the findings of other similar case studies (Alaimo et al., 2008; French & Stables, 2003; Heim et al., 2011; McAleese & Rankin, 2007; Robinson-O'Brien et al., 2009; Rustard & Smith, 2013; Townsend et al., 2006; Wyker et al., 2012). Participant views on food and patterns of consumption were positively affected by participation in the Green Tomorrows program, mostly through increased knowledge of healthy diets, and the incorporation of more nutrient-rich foods into diets.

Community Impact

Though it was acknowledged that the Green Tomorrows program could have had a larger impact on the surrounding community, staff and participants both confirmed that the program and the farm as a whole, positively affected the community of LeDroit Park. One way in which the program affected the community was by increasing local food security. Programs like Green Tomorrows can help increase local food security by providing knowledge of food sources, and through the cultivation and distribution of produce in their communities (Heim et al., 2011; Robinson-O'Brien et al., 2009; Rustard & Smith, 2013). Participants and staff also found the farm space and program to be tools through which community cohesion was enhanced. This finding aligns with other urban agricultural endeavors that have connected residents using

agriculture to develop more vibrant communities (Bailkey and Kaufman, 2000; Meenar and Hoover, 2012; Thomson et al., 2007). Based on the interviews with CGCF and the Green Tomorrows staff and participants, the programming has brought together community members and engaged them in common agricultural learning activities that have strengthened the LeDroit Park community. This study served as a developmental evaluation of the CGCF's Green Tomorrows program that included the perspectives of both staff and participants. From the analysis of the data, the logic model found in Appendix F summarizes the short and long-term programmatic outcomes for staff to consider when evaluating the program's overall impact.

RECOMMENDATIONS and CONCLUSIONS

Key Lessons

Understanding the desired outcomes of the Green Tomorrows program for staff and participants can help staff to tailor future curriculum in such a way that the program achieves greater impact on participants. Additionally, comprehending the true impacts of program participation on participants reveals program efficacy, and the extent to which the program is reaching its' stated objectives. Increasing food security of participants was a stated program goal that was described as being satisfactorily met by staff and participants primarily due to the program's regular vegetable distribution. The health of participants was heightened through increased mindfulness of diet and healthy consumption patterns garnered through nutrition and food demonstration workshops. Participants increased consumption and the procurement of fresh produce through programmatic food distribution, food demonstration workshops and associated food sampling, and workshops focused on shopping. The knowledge and skills necessary for participants to create healthy dishes at home were very successfully conveyed through the program, primarily through food demonstration workshops and distributed recipes.

Enabling and encouraging participants to grow food in urban surroundings was one of the least successful aspects of the program, mostly attributed to participant disinterest in hands-on farm work, and the inability to transfer most conveyed skills to outside the farm space. Regular participants of the program had a greater understanding of healthy foods and nutrition after completing the program, leading to healthier diets and lifestyles.

Illuminating the motivations behind participant enrollment in the program may help staff to entice more individuals to register in future program cycles. Participants were driven to enroll in the program because of interest in gaining agricultural and food knowledge, to increase regular levels of activity and exercise through participating in a green space, and programmatic vegetable distribution. Most influential in driving program participation was the promise of weekly distribution of free produce to participants.

Lastly, understanding impacts of the program on the surrounding community may help CGCF to more positively affect the community and ensure the survival of the farm. Developing community relations are vital to the sustainability of an urban farming operation. Green Tomorrows helped to increase neighborhood food security through providing information related to food and healthy living, and the cultivation and distribution of free produce. CGCF is a community green space that engages community members, and brings together neighbors in common activities that help strengthen interpersonal connections and improve community value. The Green Tomorrows program, and CGCF as a whole, could more greatly impact the community by advertising programs and their services more widely, bringing workshops regularly to the LeDroit Apartments, and by more heavily recruiting participants.

Recommendations for the Green Tomorrows Program

Based on this study's qualitative findings are the following ten recommendations that encompass participant recruitment and retention, and overall program quality and enhancement. Additionally, the logic model (Appendix F) provides a visual representation of changes that are recommended, and the possible resulting outcomes if those changes are implemented.

1. Utilize community liaisons to recruit participants from surrounding neighborhoods and advertise program services.
 - a. To minimize recruitment barriers and attract more individuals from the farm's immediate surroundings: Utilize individuals with strong connections to the community.
 - b. To increase the visibility of CGCF and the Green Tomorrows program: Advertise programs and services provided within community centers, schools, local businesses, and housing complexes.
2. Develop a methodology to obtain regular feedback from participants about all aspects of the program and then gear programming accordingly.
 - a. Develop survey instrument and administer pre and post workshops to elicit thoughts from participants regarding interest in and utility of workshop material. This may result in suggestions to re-craft workshops in ways that would better serve participants.
 - b. Develop and administer produce distribution survey: Include questions about how participants used the produce and what vegetables and fruits they most enjoyed. This could better inform staff of what produce to cultivate and distribute to participants.
3. Provide workshops that are focused upon conveying skills and knowledge that can be easily applied by participants in an urban environment.

- a. Continue and/or expand workshops focused on food preparation, canning, container gardening, and nutrition education.
4. Provide incentives to acquire workshop teachers of top quality and experience.
 - a. Compensate workshop teachers: Establish stipend fund and advertise for prospective educators through advertisements and the CGCF website.
5. Expand food demonstrations workshops that include food sampling to expose participants to new and healthy foods and attract more participants into the program.
6. Offer workshops in LeDroit apartments would increase program participation among local residents, especially those who are elderly or disabled.
 - a. Focus indoor workshops on food preparation and budgeting, container gardening, to engage the elderly and disabled individuals.
7. Screen Green Tomorrows applicants to gauge interest about hands-on agricultural based activities and match participant interests with programming.
 - a. Focus agricultural activities on skills and knowledge that can be applied by participants in home environments.
8. Develop marketing materials: Integrate participant quotes or stories of successes on flyers, program posters/brochures and/or website.
 - a. Integrate quotes from this report into marketing materials using participant testimonies (quotes) living within the neighborhood.
 - b. Highlight key impacts (participant) in marketing materials. Potential enrollees become aware of the benefits from program participation.
9. Devise an incentive plan to increase participant attendance

- a. Possible suggestions: Bonus food distribution, opportunities for paid farm work, or formal recognition upon program completion on the website or other promotional materials.

10. Continue vegetable distribution and develop a plan to diversify crops annually.

Recommendations for Further Study

While this study revealed a better understanding of the effectiveness and impacts of the Green Tomorrows program on staff and participants, recommendations for further research include the increasing the sample size for more reliability, validity, and transferability of this study's findings. The collection of more participant information prior to the interviews could have provided the researcher with a better understanding of participant backgrounds and demographics and improved the study design, specifically the development of participant friendly interview questions. Administering pre and post-screening questionnaires would allow for comparison of participant behaviors and attitudes before and after program involvement. Follow-up interviews and surveys administered to participants at intervals after program completion (i.e. six months and one year after completion) may determine if changes in participant behaviors and knowledge and skills are sustained. Future research should examine the quantifiable impacts of program participation on consumption patterns and health, as well as the impact of free vegetable distribution on these outcomes through the development of a formal evaluation tool. Continued study of teaching methods and tools utilized in the program may help to identify effective and ineffective methods by which the program attempts to convey skills and knowledge. Continued study of the Green Tomorrows program may help to create a program that affects greater positive changes in participant lives. More comparative research on the

effectiveness of urban agricultural education programs such Green Tomorrows is needed and critical to their continued success.

Conclusions

Interviews with staff and participants of the Green Tomorrows program revealed experiences and outcomes that indicate that CGCF, its Green Tomorrows program, and similar programs, positively affect participants. These urban agriculture and nutrition education programs can help to enhance participant food security and health, provide knowledge of healthy eating and how to procure and prepare healthy foods, and skills relating to growing food in urban areas. Changes in participant attitudes and behaviors due to programming, as well as embedding farms in urban neighborhoods, can transform communities. Participation in the Green Tomorrows program led to changes in participant attitudes and behaviors regarding food, diet, and agriculture. This resulted in participants becoming more mindful of their participation in the food system, and adopting healthier lifestyles. Common Good City Farm is also a positive force in the LeDroit Park community, offering a green space for residents to enjoy, cultivate food for local consumption, and improve their levels of education. The Green Tomorrows program provides skills, knowledge, food, and a space, which results in the improvement of the community and program participant's lives. Such programs to remain relevant will benefit from embedding a customized formal program evaluation to document impacts as well as improve and thus maintain quality.

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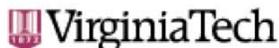
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APPENDICIES

Appendix A

IRB Letter of Approval



Office of Research Compliance
Institutional Review Board
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MEMORANDUM

DATE: January 10, 2014
TO: Susan D Day, Kim Niewolny, Susan Clark, Alexander Ace Trutko
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires April 25, 2018)
PROTOCOL TITLE: Perceived Outcomes of a Community-based Urban Agriculture and Nutrition Education Program: A Case Study of Common Good City Farm's Green Tomorrows Program in Washington, D.C.
IRB NUMBER: 14-032

Effective January 10, 2014, the Virginia Tech Institutional Review Board (IRB) Chair, David M Moore, approved the New Application 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) 6,7**
Protocol Approval Date: **January 10, 2014**
Protocol Expiration Date: **January 9, 2015**
Continuing Review Due Date*: **December 26, 2014**

*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.

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Appendix B Consent Form A

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

Title of Project: Perceived Outcomes of a Community-based Agriculture and Nutrition Education Program: Experiential Analysis of Common Good City Farm's Green Tomorrows Program

Investigator(s): Alexander Trutko, M.S. Candidate, Virginia Tech; Susan Clark Faculty; Susan Day Faculty (Co-PI); Kim Niewolny Faculty (Co-PI).

I. Purpose of this Research Project

The purpose of this study is to compare intended outcomes of the Green Tomorrows program (staff goals), with the actual outcomes achieved by program participants (participant outcomes). The interviews and interview transcriptions are intended to reveal staff and program participant goals for the program, and the realized outcomes of the program for staff and participants. The intended products of this research are to illustrate participation outcomes of this program, and to learn how this program may be modified to best serve future participants.

II. Procedures

This study will include consenting participants and staff of the Green Tomorrows program. Willing study subjects will partake in a semi-structured interview by the investigator. The interview will be recorded with an audio device, and the investigator will transcribe that audio recording. The interview should last no longer than 90 minutes for staff of Common Good City Farm, and will include 9 semi-structured questions; participant interviews should not exceed 45 minutes, and will include 11 semi-structured questions. The interview may take place at the convenience of the participants.

III. Risks

This study has been reviewed and approved by the Virginia Tech Institutional Review Board. We do not anticipate any risks associated with your participation in this study. Your participation in the interview is totally voluntary, and is in no way compulsory. You have the right to remain anonymous in any documents or publications created with information from your interview.

IV. Benefits

There are no financial benefits of participating in this study. There are a few indirect benefits of your participation in this interview. The results, including excerpts from interviews, may be used to promote the Green Tomorrows program, and Common Good City Farm. Information gathered from the interview may be used to identify "best practices" of the Green Tomorrows program, leading to curriculum alterations that will better serve future participants of the program.

V. Extent of Anonymity and Confidentiality

You have the right to remain anonymous for this interview-based research. If you choose total anonymity, your identity, and that of individuals you mention, will be kept completely confidential, and only be known to the research team. If you do choose to identify yourself, only your name and associated organization will be listed. The interviews will be audio recorded and later transcribed by the researcher (Alexander Trutko) under the supervision of principle researcher (Dr. Clark). When transcribing the interviews, codes or pseudonyms will be used in place of your name, and names of those individuals you mention. Additionally, any mentioned identifying information will be altered to ensure anonymity. These codes and pseudonyms will also be used in the creation of any related written reports, unless you consent to the sharing of your identity in research findings. After transcription, audio recordings will be destroyed, and transcriptions will be kept on a password-protected computer.

VI. Compensation.

No financial compensation will be received by you for participation in this study.

VII. Freedom to Withdraw

Participation in this study is completely voluntary, and you are free to withdraw at any point. You are also free to refuse to answer any interview question.

VIII. Subject Responsibility

Participation in this study requires:

- Staff of Green Tomorrows completing one interview session lasting around 90 minutes.
- Participants of Green Tomorrows completing one interview session lasting around 45 minutes.

IX. Subject’s Permission

“I voluntarily agree to participate in this research study. I have read and understood this consent form and conditions of this research, and all of my questions have been answered. I hereby acknowledge the above and give my voluntary consent.”

Subject signature

Date

Should I have any pertinent questions regarding this research, its’ conduct, research subjects’ rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

Alexander Trutko
Investigator

7035873166/atrutko@vt.edu
Phone number/ E-mail

Susan Clark
Faculty Advisor

5402318768/sfclark@vt.edu
Phone number/ E-mail

David Moore
Chair, IRB
Office of Research Compliance
Research & Graduate Studies

5402314991/moored@vt.edu
Phone number/ E-mail

**Appendix C
Consent Form B**

**VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY(FORM B)
Informed Consent for Participants in Research Projects Involving Human Subjects**

Title of Project: Perceived Outcomes of a Community-based Agriculture and Nutrition Education Program: Experiential Analysis of Common Good City Farm’s Green Tomorrows Program

Investigator(s): Alexander Trutko, M.S. Candidate, Virginia Tech; Susan Clark Faculty; Susan Day Faculty (Co-PI); Kim Niewolny Faculty (Co-PI).

I. Purpose of this Research Project

The main purpose of this study is to evaluate the intended goals of participation in the Green Tomorrows program, with the actual outcomes achieved by the participants of the program. The interviews, along with the report constructed of interview excerpts, are intended to reveal staff and program participant goals for the program, and the realized outcomes of the program for staff and participants. The report will consist of excerpts of interview transcriptions, with the questions edited out, leaving only the words of the interviewee. The intended products of this research are to illustrate the outcomes and effects of participation in this program, and to learn how this program may be modified to best serve future participants.

II. Anonymity and Confidentiality

You have the right to remain anonymous for this interview-based research. If you choose total anonymity, your identity, and that of individuals you mention, will be kept completely confidential, and only be known to the research team. If you do choose to identify yourself, only your name and associated organization will be listed.

III. Subject’s Permission to Share Identity in Publications Resulting from Study

By signing below, you agree to decline complete anonymity of your transcription. This means that you permit the use of your name, and organization’s name, in any research findings and subsequent publications.

“I voluntarily permit the use of my name and organization’s name in my interview’s transcription and related report. I have read and understand this informed consent, and the conditions of this research, and have all my questions regarding it answered. I hereby acknowledge the above and give my voluntary consent.”

Subject signature

Date

Should I have any pertinent questions regarding this research, its’ conduct, research subjects’ rights, or whom to contact in the event of a research-related injury to the subject, I may contact:

<u>Alexander Trutko</u>	<u>7035873166/atrutko@vt.edu</u>
Investigator	Phone number/ E-mail
<u>Susan Clark</u>	<u>5402318768/sfclark@vt.edu</u>
Faculty Advisor	Phone number/ E-mail
<u>David Moore</u>	<u>5402314991/moored@vt.edu</u>
Chair, IRB	Phone number/ E-mail
Office of Research Compliance, Research & Graduate Studies	

Appendix D

Green Tomorrows Staff Interview Guide

Pre-Interview Introduction

“Thank you for meeting with me today, I’m very glad that you’ve agreed to participate in this interview. Briefly, I’d like to explain how this will progress. Today we will do an interview that should last around 90 minutes. This interview will be tape recorded, and then I will transcribe the interview, editing out my questions, and use excerpts of your answers to create a written report. These excerpts will be used to share your story of working with Green Tomorrows and Common Good City Farm, and may be read by future staff members of the program, or perspective participants of the program. During this interview I will ask you questions regarding your background, your position at Common Good City Farm, and why you sought to become involved with Common Good City Farm. I will also ask you about the specific role(s) that you have within the Green Tomorrows program, and what services you provide through the program. Lastly, I would like to know your goals for the program, your desired outcomes for participants of the program, which program practices work best towards achieving those goals, and which could be altered to better serve participants and the program. You will have the choice of being identified, or remaining anonymous in the report. Information you share during the interviews will not be used in a manner that you do not personally approve of. Thank you again for participating in this interview.”

Part 1: Background

1. What is your current position at Common Good City Farm?
 - a. How long have you been in this position?
 - b. Can you provide a brief overview of what you do at work?
2. I would like to understand why you ended up in this area and position:
 - a. What were you doing before you became involved here?
 - b. What led you to this job?
3. Why did you decide to seek employment/involvement with Common Good City Farm?

Part 2: Green Tomorrows – Description of Role & Services

1. What role/s do you fill in the Green Tomorrows program?
2. What services do you provide to participants and to program facilitation/management?
3. How does fulfilling this role contribute to meeting the stated goals of the program?

Part 3: Goals and Outcomes

1. What are the stated goals of the Green Tomorrows program?
2. What are your goals for the program? Do they differ from the institutionally stated goals of the program? What do you hope for participants to achieve?
 - a. What practices do you believe worked best to achieve these goals? In what ways?
 - b. What practices do you believe you would change to better achieve these goals? In what ways?
3. I would like to know how Green Tomorrows may enhance the lives of participants. How do you believe Green Tomorrows affects participants?
 - a. How does it affect participant food security?
 - b. How does it affect participant knowledge of nutrition, food preparation, food budgeting, and growing food? Have you seen evidence of changes in participant health and consumption patterns?
 - c. Do you believe this program affects the local community? How?

Appendix E

Green Tomorrows Participant Interview Guide

Pre-Interview Introduction

“Thank you for meeting with me today, I’m very glad that you’ve agreed to participate in this interview. Briefly, I’d like to explain how this will progress. Today we will do an interview that should last around 45 minutes. This interview will be tape recorded, and then I will transcribe the interview, editing out my questions, and use excerpts of your answers to create a written report. These excerpts will be used to share your story with staff of Common Good City Farm, and people who may be interested in participating in Green Tomorrows in the future. During this interview I will ask you questions in order to gather information on your background, and why you enrolled in the Green Tomorrows program. Additionally, I would like to hear about your experiences in the program, how it has impacted your life, and finally, which aspects of the program served you best, and which need to be changed to better serve participants. You will have the choice of being identified, or remaining anonymous in the report. Information you share during the interviews will not be used in a manner that you do not personally approve of. Thank you again for participating in this interview.”

Part 1: Background, Referral, & Enrollment

1. Where do you currently live?
2. What job do you currently have? Can you provide a brief overview of what you do at work?
3. How did you hear about the Green Tomorrows program?
4. Why did you decide to participate in Green Tomorrows?
5. What were you/your family’s eating habits before participating in the program?

Part 2: Participant Experiences & Services Received

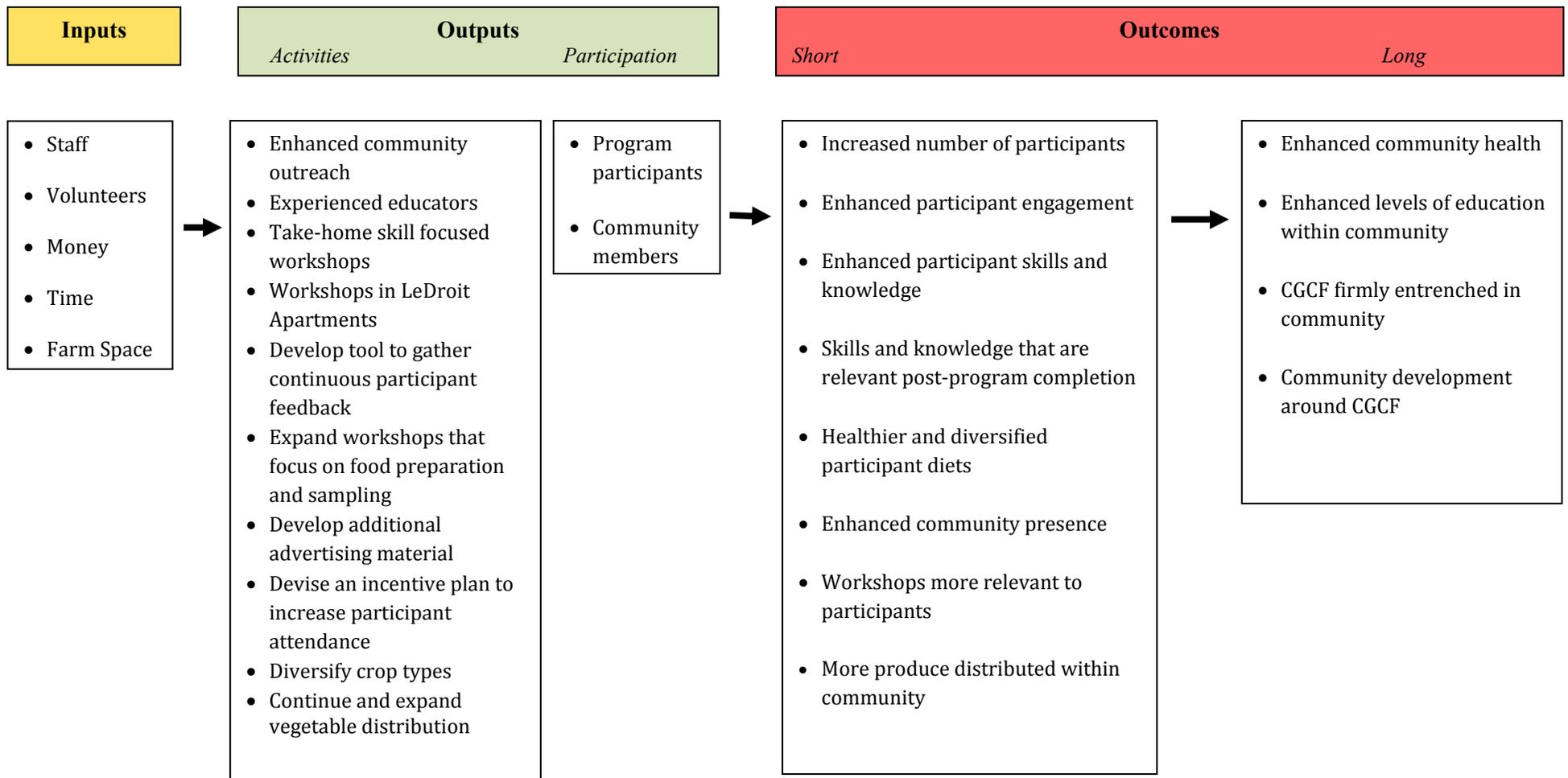
1. What types of services/assistance have you received through the Green Tomorrows program?
2. Are there any aspects of this program that you found particularly helpful to you?
3. Are there any aspects of this program that you would change to make it more useful to you?
4. Would you encourage others to participate in Green Tomorrows? Have you referred anyone to the program?

Part 3: Participant Outcomes

I would like to hear about what differences your participation in the Green Tomorrows program has made in your life. As you know, one component of this program is to provide (you) with food from the farm in order to help improve your/your family’s access to fresh and affordable produce. Access to fresh and affordable produce should also increase through your enhanced knowledge of growing food and interacting with the food system.

1. With that in mind, how has this program affected your/your family’s access to fresh and affordable produce? Has the produce provided through the program changed you/your family’s eating habits?
2. Since participating in the program:
 - a. Have you or your family become healthier? In what ways?
 - b. Has what types or how you buy food changed? In what ways?
 - c. Have you grown plants for food off the farm, or continued to work with plants on the farm? If so, what have you grown, and how have you used it?
 - d. Have you changed the way you prepare food at home? Have you increased the frequency that you eat at home?
3. Has this program in any way changed your outlook on food and/or diet? If so, how? In what ways have your eating patterns changed?
4. How have, and will, you/your family use the skills and knowledge gained through this program in the future? Do you intend to continue participating with the farm, or urban gardening in some other way?

Appendix F
Logic Model for the Further Development of the Green Tomorrows Program



Appendix G

Staff Interview Response Table

Staff	Part 1: Interview Questions					
ID	1	1a	1b	2a	2b	3
S1	AmeriCorps VISTA	Since July 2013 (8 months)	Green Tomorrows program facilitation, Program participation data collection, CGCF CSA re-design	Graduate Student - Environmental Science and Policy	Interest in urban agriculture, Interest in community building	CGCF programs, CGCF community involvement
S2	Executive Director CGCF	10 months)	Program Management, Fundraising, Money management, Employee/volunteer management	Non-profit fundraising	Interest in urban agriculture, Connections with CGCF founders	Food production/distribution, CGCF programs
S3	Green Tomorrows Coordinator	April to November 2013	Participant recruitment, Workshop facilitation, Food distribution	Food security non-profits	Interest in food security, Interest in building community	Interest in education, Interest in developing community, CGCF community involvement
S4	Farm Manager CGCF	Two years	Food production, Crop care, Agriculture education	Farming, Graduate Student - Ecological Horticulture, Social work	Interest in urban agriculture, Interest in food security, Interest in building community	CGCF community involvement, Food production/distribution
Staff	Part 2: Interview Questions					
ID	1	2			3	
S1	Data collection, Food distribution, Workshop coordination	Ensures workshops occur, Food distribution			Ensures workshops occur, Food distribution	
S2	Hiring employees, Program development	Participant engagement, Develop community			Participant engagement, Develop community	
S3	Participant recruitment, Food distribution, Workshop facilitation, Data collection	Participant engagement			Participant engagement	
S4	Participant agriculture education, Directing farm work	Participant engagement, Develop community			Participant engagement, Develop community	
Staff	Part 3: Interview Questions					
ID	1	2	2a		2b	
S1	Participant exposure to farm, Food distribution, Nutrition education, Agriculture education	Develop community, Participant education, Food distribution, Participant exposure to farm	Food distribution, Canning workshop, Food demo workshops, Recipes, Nutrition/health workshops		Increased participant engagement, Increased participant farm work, Fewer/better workshops, More workshops at LeDroit Apartments	
S2	Increase food security, Agriculture education	Participant education, Develop community, Food distribution	Food distribution, Food demo workshops, Container garden workshop, Community green space		Fewer/better workshops, Increased participant farm work, Long-term participant engagement, More program flexibility	
S3		Participant education - health and nutrition, Enhance cooking skills	Food demo workshops, Nutrition/health workshop, Herbal workshop		More workshops at LeDroit Apartments, Fewer/better workshops, More youth engagement and community outreach	
S4	Food distribution, Nutrition education, Agriculture education, Increase food security, develop community	Participant education, Develop community, Healthier participant diets, Increased food access	Program flexibility, Developing relationships with participants, Nutrition/health workshop, Food demo workshops, Food budgeting workshop		Fewer/better workshops, Increased participant engagement, Employment training	

Staff	Part 3: Interview Questions <i>continued</i>				
ID	3	3a	3b	3c	How?
S1	Participant exposure to farm, Access to fresh produce, Healthier lifestyles, Exposure to new knowledge/experiences	Access to fresh produce, More available money for groceries	Enhanced cooking skills, Access to fresh produce, Enhanced food budgeting skills, Exposure to new foods, Enhanced agricultural skills	Yes- room for improvement	Community green space, Increased education in community
S2	Participant exposure to farm, Exposure to new knowledge/experiences	Access to fresh produce	Enhanced cooking skills, Enhanced nutrition education, Enhanced agricultural skills, Access to fresh produce	Yes	Community green space, Increased community food security, Enhanced community harmony
S3		Access to fresh produce, More available money for groceries	Enhanced health/diet, Access to fresh produce, Exposure to new foods, Enhanced Agriculture skills	Yes- room for improvement	Increased education in community, Enhanced community connections
S4		Access to fresh produce, Food system education	Enhanced cooking skills, food budgeting skills, health/diets, agricultural skills	Yes	Increased community food security, Community green space, Develops community

Participant Interview Response Table

Participant	Part 1: Interview Questions					
ID	1	2	3	4	5	
P1	LeDroit Apartments - LeDroit Park, Washington DC	Not employed - disability	Printed advertisement	Vegetable distribution	Ate fewer fresh vegetables	
P2	LeDroit Apartments - LeDroit Park, Washington DC	Not employed - retired	Printed advertisement, Word of mouth	Exercise/Increase activeness	Similar before and after	
P3	Apartment - SE, Washington DC	Employed - National Resource Defense Council	Internet, Volunteering at CGCF	Learn about Farming	Similar before and after	
P4	Kelly Miller Housing - LeDroit Park, Washington DC	Not Employed	Word of Mouth	Learn about Farming, Vegetable distribution	Ate fewer fresh vegetables	
P5	LeDroit Apartments - LeDroit Park, Washington DC	Not employed - disability	Saw program while outside	Knowledge	Ate fewer fresh vegetables	
Participant	Part 2: Interview Questions					
ID	1	2	3	4	5	
P1	Workshops, Vegetable distribution	Vegetable distribution, Food demo workshops	Expand vegetable variety, Workshops for disabled seniors in LeDroit Apartments	Yes	No	
P2	Food demo workshops, Recipes	Food demo workshops, Food sampling, Recipes	Expand vegetable variety	Yes	No	
P3	Agricultural Skills and Knowledge	Agricultural skills and knowledge, Food demo workshops, Herbal workshop, Canning workshop, Stress Release	Participation requirements	Yes	Yes	
P4	Vegetable Distribution, Canning workshop, Food demo workshops	Agricultural skills and knowledge, Food demo workshops, Canning workshop	More advertisement, More workshop materials, More workshop sessions	Yes	Yes	
P5	Vegetable distribution, Workshops, Space to do farm work	Food sampling, Food demo workshops, Agricultural skills and knowledge	Dogs on the farm	Yes	No	
Participant	Part 3: Interview Questions					
ID	1	How?	2a	How?	2b	How?
P1	Yes	Changed shopping, Changed diet	Yes	Eating CGCF vegetables	Yes	Buy more fruits and vegetables
P2	Yes	Changed diet	Yes	Mindful of diet now	Yes	Knowledge of healthy foods
P3	Yes	More vegetables	Yes	Eating CGCF vegetables	Yes	More available money for groceries
P4	Yes	More vegetables, More available money for groceries, Enhanced community	Yes	Eating CGCF vegetable, Mindful of diet now	Yes	More available money for groceries, knowledge of healthy foods
P5	Yes	Changed diet, More vegetables, Enhanced community	Yes	Eating CGCF vegetables	Yes	Buy more fruits and vegetables

Participant	Part 3: Interview Questions <i>continued</i>							
ID	2c	How?	2d	How?	3	How?	4	How?
<i>P1</i>	Yes	Growing food at home	Yes	Eats more vegetables	Yes	Agricultural workshops, Food demo workshops, eats more vegetables and fruit	Yes	Growing at home, Volunteer on farm, Attend workshops
<i>P2</i>	No		Yes	Use CGCF recipes	Yes	Mindful of diet now, Knowledge of healthy foods/diet	Yes	Volunteer on farm
<i>P3</i>	Yes	Growing food at home	Yes	Use CGCF recipes, Canning workshop	Yes	Mindful of the food system	Yes	Growing at home, Volunteer on farm, Join herbal apprenticeship program
<i>P4</i>	Yes	Growing food at home	Yes	Eats more vegetables, Healthier cooking, Increased frequency of eating at home	Yes	Knowledge of healthy foods/diet	Yes	Growing at home, Volunteer on farm,
<i>P5</i>	Yes	Growing food at home/LeDroit Community Garden Plot	Yes	Healthier cooking	Yes	Mindful of diet now, Knowledge of healthy foods/diet	Yes	Growing at home/ LeDroit Community Garden Plot, Attend workshops, Teach family about healthy cooking