

**EVALUATION OF THE FOOD BANK OF DELAWARE
COMMUNITY SUPPORTED AGRICULTURE PROGRAM**

by

Colleen Abbott

A thesis submitted to the Faculty of the University of Delaware in partial
fulfillment of the requirements for the degree of Master of Science in Human Nutrition

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TABLE OF CONTENTS

LIST OF TABLES	vii
LIST OF FIGURES	viii
ABSTRACT	ix

Chapter

1	INTRODUCTION	1
2	LITERATURE REVIEW	3
2.1	Hunger Background	3
2.2	SNAP Benefits	4
2.3	Inner-City Food Environment	4
2.4	Fruit & Vegetable Consumption	5
2.5	Community Supported Agriculture	6
2.5.1	CSA Payment Possibilities	7
2.5.2	CSA Programs Research	8
2.6	Farmers' Markets	11
2.6.1	Research on Farmers' Markets	11
2.7	The Need for Future Research.....	14
3	SPECIFIC AIMS	15
3.1	Statement of Problem	15
3.2	Purpose	15
3.3	Specific Aims	16
3.4	Research Questions	16
4	DESCRIPTION OF THE FBD-CSA PROGRAM.....	17
4.1	Project Goals	19
4.2	Performance Objectives	19
4.3	Intended Outcomes.....	20

5	METHODS	21
5.1	Description of Participants	21
5.2	Description of Instruments	22
5.3	Procedures	24
5.4	Data Analysis	25
6	RESULTS	27
6.1	SNAP Participants	27
6.2	Focus Group of SNAP Participants	30
6.2.1	Enjoyment	30
6.2.2	Appreciation	31
6.2.3	Economic Benefit/Affordability	31
6.2.4	Lack of Organization	32
6.2.5	Safety Concerns About Site	32
6.2.6	Complaints	32
6.3	Key Informants	33
6.3.1	Farmers	33
6.3.2	Farmers' Market at Cool Spring Park Vendors	34
6.3.3	Food Bank of Delaware Employees	36
6.3.4	Bright Spot Venture Worker	40
6.4	Review of Goals & Objectives	41
7	DISCUSSION	42
7.1	SNAP Participants	42
7.2	Farmers	45
7.3	Farmers' Market at Cool Spring Park Vendors	45
7.4	Food Bank of Delaware Employees	46
7.5	Bright Spot Venture Worker	48
7.6	FBD-CSA Program	49
7.6.1	Strengths	49
7.6.2	Weaknesses	49
7.6.3	Ways to Improve	50
7.6.4	Future FBD-CSA Program	51
7.7	Conclusion	53

TABLES	55
FIGURE.....	69
REFERENCES	71

Appendix

A	PRE- SURVEY	75
B	POST-SURVEY	78
C	FOCUS GROUP CONSENT FORM.....	80
D	FOCUS GROUP SCRIPT	83
E	KEY INFORMANT SURVEY	86
F	FARMER QUESTIONNAIRE	89
G	POST CARD	91
H	DROPOUT POST CARD	93
I	RECRUITMENT BROCHURE	95
J	IRB Approval	98

LIST OF TABLES

Table 1: Demographics of Participants who Completed a Pre-survey & a Post Survey	56
Table 2: SNAP Participants’ Confidence in Preparing Fresh Fruits & Vegetables	57
Table 3: SNAP Participants’ Ease of Access in Obtaining Fresh Fruits & Vegetables	58
Table 4: Number of Times SNAP Participants Attended the FBD-CSA Program	59
Table 5: Fruit and Vegetable Servings from the Pre-Survey of SNAP Participants Who Attended the FBD-CSA Program & Participants Who Did Not Attend	60
Table 6: Fruit and Vegetable Servings from the Pre-Survey of SNAP Participants Who Completed the Post-Survey & Participants Who Did Not Complete A Post-Survey	61
Table 7: SNAP Participants Pre-Survey & Post-Survey Fruit and Vegetable Servings	62
Table 8: Frequency of Fruit and Vegetable Servings from the Pre-Survey & the Post-Survey	63
Table 9: Post-Survey Fruit and Vegetable Servings of SNAP Participants By Race ..	64
Table 10: Post-Survey of Fruit and Vegetable Servings of SNAP Participants By Household Composition	65
Table 11: Project Goals & Performance Objectives	66

LIST OF FIGURES

Figure 1: The number of SNAP participants who completed different steps of the survey process of the FBD-CSA program.	70
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ABSTRACT

Background: Many individuals are a part of food assistance programs. Most who participate in the Supplemental Nutrition Assistance Program (SNAP) are not meeting the Dietary Guidelines for fruit and vegetable intake. A possible strategy to increase SNAP participants' fruit and vegetable intake is to allow them to participate in a Community Supported Agriculture (CSA) program. CSA is a program in which individuals from a community invest money into a local farm and share the risks and benefits of the local farm.

Aims: The primary aim of this study was to evaluate the success of a CSA program, based on the program's objectives and goals, that accepts SNAP benefits at a reduced rate. The secondary aim was to determine the influence a CSA program had on fresh fruit and vegetable intake in a low-income population.

Methods: Subjects were recruited on a volunteer basis from those involved in the Food Bank of Delaware Community Supported Agriculture (FBD-CSA) program. Standardized surveys assessed subjects' perceived ease of accessing fresh fruits and vegetables, fruit and vegetable consumption, and confidence in preparing fruits and vegetables pre and post FBD-CSA program involvement. A focus group was conducted to obtain feedback from a sample of the program's SNAP participants. Opinions of the FBD-CSA program were collected from the FBD staff, farmers who provided produce for the shares, vendors who participated in the farmers' market at Cool Spring Park, and the Bright Spot Venture Worker.

Results: There was no statistically significant difference in fruit and vegetable intake pre and post the FBD-CSA program among SNAP participants (n = 45). The focus group showed enjoyment and appreciation for the FBD-CSA program. There were mixed views about the FBD-CSA program amongst the key informants.

Conclusion: The FBD-CSA program was successful in achieving most of the program's set goals and objectives. The FBD-CSA program was not successful in SNAP participant retention and no significant changes were seen in fruit and vegetable intake. Numerous changes have been suggested to the FBD-CSA program to become more successful next season.

Chapter 1

INTRODUCTION

In 2012, 48.9 million people struggled with hunger; of that, 15.8 million were children, meaning that 21.6% of all children in the United States live in food-insecure households.¹ To help with food insecurity, the government has created multiple nutrition assistance programs. Some of those programs include: Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), National School Lunch Program (NSLP), and Farmers' Market Nutrition Program (FMNP).² These federal assistance programs help with food insecurity but do not usually allow participants to enjoy a reliable supply of fresh, local, affordable produce.

SNAP is the largest nutrition assistance program funded by the United States Department of Agriculture (USDA).³ SNAP participation is on the rise. In October 2013, 47,415,895 people participated in SNAP.⁴ There was a 110,228 persons increase from September 2013 to October 2013.⁴ The amount of assistance a family receives in SNAP benefits depends on the family's income and the state in which they live. The 2009 American Recovery and Reinvestment Act ended on November 1, 2013. This reduction in benefits leaves the average SNAP participants with \$1.40 to spend per meal.⁵ SNAP benefits are received on an electronic benefits transfer (EBT) card. Typical locations that accept an EBT card are drug stores, gas stations, convenience stores, and grocery stores.⁶ Recently, select farmers' markets have acquired EBT terminals so they can accept SNAP benefits. By accepting SNAP benefits at farmers'

markets, low-income populations have an increase in produce availability, which is often lacking in the diets of SNAP recipients.

Another possible way to increase fresh fruit and vegetable access is to join a Community Supported Agriculture (CSA) program. A CSA program is different from a farmers' market because a CSA program requires money upfront to purchase a share of produce. A CSA program seems very costly because the money is due as one fee in the winter before the growing season. A share can cost anywhere from \$100 to \$650 for the growing season.^{7,8} There is very limited research on CSA programs. One study found after joining a CSA program, 67.5% self-reported an increase in the amount of fruits and vegetables consumed.⁹ Most CSA programs do not accept SNAP benefits, making it difficult for the low-income population to share the benefits and the risks of a farmer. The study described here will discuss and evaluate the outcome of a USDA grant funded CSA project in Delaware.

Chapter 2

LITERATURE REVIEW

The purpose of this review is to investigate current CSA programs that accept SNAP benefits. There are limited research studies on CSA programs that accept SNAP benefits, so research on CSA programs, SNAP benefits, and farmers' markets were investigated. This chapter is organized into six sections. The first section provides background information on hunger followed by a section describing SNAP benefits. The third section discusses the inner-city food environment. The fourth section gives details on fruit and vegetable consumption in low-income populations. The fifth section explains CSA programs. There are two subsections in the CSA programs section. The first one discusses CSA payment possibilities and the second analyzes the research on specific CSA programs. The final section reviews the literature on farmers' markets and contains a subsection examining research on specific farmers' markets.

2.1 Hunger Background

According to the Food and Agriculture Organization of the United Nations, 842 million people worldwide were chronically undernourished between 2011-2013.¹⁰ In the United States, one in six people is hungry.¹ To help with hunger in the United States, food assistance programs –SNAP, NSLP, and WIC – provide benefits for food to those whose gross monthly income is \leq 130% of the Federal Poverty Line (FPL).¹¹ In 2012, 59.4% of food-insecure households participated in at least one of the three

major Federal food assistance programs.¹² In New Castle County, DE, 14.88% of the population participated in SNAP in 2011.¹³

2.2 SNAP Benefits

SNAP benefits can be used to purchase breads, cereals, fruits, vegetables, meats, fish, poultry, and seeds and plants which produce food for the household.¹⁴ SNAP benefits cannot be used to purchase beer, wine, liquor, tobacco, non-food household items such as pet food, soaps, paper products, foods that can be eaten in the store, and hot foods.¹⁴ SNAP participants receive an EBT card to use at various locations that indicate they accept SNAP. Many of these locations do not always provide the freshest or largest variety of fresh fruits and vegetables.

2.3 Inner-City Food Environment

Munoz-Plaza and associates¹⁵ investigated the inner-city food environment. They conducted three focus groups with residents of East New York, Brooklyn. Each focus group lasted an hour and a half. The focus group led, by a facilitator, was audio-recorded, and another research team member was present for quality assurance. The authors found the local food environment to have limited store options; poor quality and higher cost of the food, and the residents were concerned about the marketing and food packaging practices of local food purveyors. The participants also said they wanted a larger variety of fruits and vegetables and were unhappy with the quality of meat, fish, and dairy items at the local stores. The participants described the meat in the local stores as “green” and “spoiled.”¹⁵ The authors found multiple factors that limit the East New York residents from consuming healthy food. Those factors include: poor quality of food, higher cost of food, few store options, limited

transportation, and concerns about food marketing practices. They also found an absence of social pressure to eat healthier and a lack of knowledge about nutrition.

2.4 Fruit & Vegetable Consumption

According to the *Dietary Guidelines for Americans 2010*, the recommended serving of fruit is ≥ 2 c per day, and the recommended serving for vegetables is ≥ 2.5 c per day based on 2,000 calories per day diet.¹⁶ Data based on income are unavailable but in the state of Delaware, 39.2% of the adult population ate fruits less than one time per day, and 23.8% ate vegetables less than one time per day in 2013.¹⁷ According to Leung et al,¹⁸ the association between SNAP participation and dietary intake has not been studied extensively. The SNAP program is not structured to provide incentives for beneficiaries to purchase nutrient-rich foods. The researchers conducted a study to examine the diets of low-income adults by comparing SNAP participants and income-eligible nonparticipants. The authors analyzed data collected by National Health and Nutrition Examination Survey (NHANES) between 1999-2008. They discovered that when compared with the national dietary guidelines very few low-income adults consumed the recommended amounts of fruits and vegetables. The mean fruit consumption for SNAP participants was 0.7 c per day and 1.1 c per day for nonparticipants. The mean vegetable consumption for SNAP participants was 0.9 c per day and 1.2 c per day for nonparticipants. When comparing SNAP participants to nonparticipants, who are at equal income levels, SNAP participants had a poorer diet quality when examining fruits and vegetables. It has been suggested that future studies look into ways to improve diet quality for SNAP participants along with ways to communicate this information to the SNAP participants. The authors also suggested longitudinal or intervention studies to determine the true effect of SNAP participation

on dietary intake over time, along with a program to increase access to fresh fruits and vegetables for SNAP participants. A possible way to increase SNAP participants' access to fresh fruits and vegetables is allowing them to use their EBT card to participate in a CSA program.

2.5 Community Supported Agriculture

CSA is a program in which individuals from a community invest money into a local farm and share the risks and benefits of the local farm.¹⁹ Investors, also known as shareholders, pay up front for their “share” from the farm. A share is a box of produce grown from the farm. On average, a single share can vary in weight from 8.5 lb to 27 lb of fruits and vegetables per week.²⁰ Shares are typically received each week and the produce in the share is usually harvested the same day it is received.²¹

The benefits of becoming a shareholder include receiving fresh, in season produce, having a sense of pride for supporting local agriculture, economic savings, increased food security, and knowledge about one's food source.²¹ Also, when belonging to a CSA one supports local farmers, sustainable agricultural practices, which translates into less reliance on fossil fuels, less pollution, and reduces the use of pesticides.²¹ Some of the risks involved when belonging to a CSA are poor harvests due to weather or pests, limited variety of produce due to the local climate, produce going to waste because of the amount received each week, and the share pick-up times or locations could be inconvenient.^{19, 21}

Without the support of the community, a significant burden of running a CSA falls on the farmer and can lead to an unsustainable program.²² This has led to a division in managing CSA programs. Some have become market-like, running a business internally, and requiring payment only from members while other CSA

programs still strive to integrate the community.²² As a way to increase the community aspect of a CSA, the CSA plans activities, holds events, and requests members to volunteer.²³

2.5.1 CSA Payment Possibilities

There are a variety of ways someone can pay for a CSA share. Those include the acceptance of government food assistance, payment plans, working shares, subsidized low-income shares, low-cost shares, and bartering.²¹ Government food assistance is when SNAP can be used to pay for a CSA share. However, when using SNAP the share can only be paid for a week in advance otherwise it is considered speculation on food rather than purchasing it.²¹

Payment plans are when multiple smaller payments are made. The CSA farm can decide to have a two-installment payment plan, monthly or weekly payment plan. When a CSA farm is using a payment plan a revolving loan fund needs to be established. To establish a revolving loan fund, the farmer uses fund money from a grant or donations for initial costs, while payments in-season replenish the fund.

Working shares provide a discounted share price for members who work on the farm. A working share is not always practical. Members must have transportation to the farm, be able to perform physical work, and have the time available to work on the farm. Other possible ways members can work towards their share are by providing their garage as a pick-up location or doing administrative work.

Subsidized low-income shares provide shares on a sliding scale. This allows those who earn less to pay less for a share and those who earn more to pay more for a share. Money is also received from grants, donations, and collaborations with community organizations to allow reduced share prices. Low-cost shares use low-

input, sustainable, minimal-labor agriculture practices to reduce the share price. A farm can provide low-cost shares by using a compost-heated green house, bio-diesel for all equipment, free fertilizer from a cooperating local horse farm, and raised beds for increased productivity.

Lastly, bartering is when any type of service for the farm counts as money earned toward the cost of a share. Even with these multiple different ways to pay for a CSA share at a reduced rate there is little research on CSA farms using these methods.

2.5.2 CSA Programs Research

The exact number of CSA farms is not known because the government does not track them. However, LocalHarvest, an organic and local food website from Santa Cruz, CA, has the most comprehensive directory of CSA farms. According to their records, there are over 4,000 CSA farms nationwide and twelve in the state of Delaware.²⁴

Quandt and associates²⁵ tested the feasibility of a CSA intervention to increase fruit and vegetable household inventory and consumption in 50 low-income women with children. This was a randomized control study with an intervention group and a control group of 25 participants each. The intervention group received a three-quarter bushel box containing 12- to 15-lb of fresh fruits and vegetables from a local farm in North Carolina. They had the ability to pick-up a share once a week for 16 weeks. The intervention group also had access to five evening education and skill-building sessions: three cooking classes, a tour of the participating farm, and a grocery store tour with a dietitian focused on healthful eating on a budget. The control group did not have access to the weekly produce pick-ups or the educational skill-building sessions. The authors used the Centers for Disease Control and Prevention's Behavioral Risk

Factor Surveillance System (BRFSS) to examine fruit and vegetable intake for the intervention group and the control group. Home availability of fruits and vegetables was measured using a checklist of 14 fruits and 25 vegetables. Results showed on average the intervention group attended nine of the 16 produce pick-ups and one of the five educational skill-building sessions. The authors saw a significant increase in the total home inventory of fruits and vegetables. However, no significant increases in fruit and vegetable consumption were seen in the intervention group when compared with the control group. The authors found transportation, work schedules, and forgetting about the share pick-ups as the most common barriers for the intervention group. Sixteen of the subjects received WIC or SNAP benefits and stated they would be willing to use these benefits for the produce. The authors suggested future studies include a larger sample size, a more highly sensitive data collection tool for dietary intake, and exploration of the use of SNAP or WIC benefits.

Cohen and colleagues²⁰ examined fruit and vegetable intake and the frequency of home-cooked meals in those participating in a CSA in New York City. The researchers used an augmented version of the National Cancer Institute's (NCI) Eating at America's Table All Day Screener to collect data. When comparing CSA members and CSA nonmembers they found a statistically significant increase in fruit and vegetable consumption of 2.2 servings per week and an increase of 4.9 home-cooked meals per month. One possible reason for these results is weekly share pick-ups enforce healthy dietary choices. People are more likely to eat the fruits and vegetables instead of letting them go to waste. A CSA program causes a financial commitment to the produce. A CSA program also eliminates participants from going to the store and making a decision about what fruits and vegetables to purchase. The authors found

those who participated in a CSA program displayed a positive effect on their diet. The authors suggested when starting with a population with less healthy dietary patterns the effect could be even more dramatic.

Hayden and Buck²² collected data on a specific CSA program in New York through an electronic questionnaire and interviews. This farmer accepted payment plans, reduced share prices and SNAP benefits in an effort to create an inclusive community. Only a few people took advantage of the alternative payment methods. This research study did not include any other information on the participants who took advantage of these alternative payment methods. This study focused on the distribution of the shares. “Weekly distributions occurred at five sites: a New York City farmers’ market, a lake community member’s driveway, a suburban church parking lot, a tented annex to a permanent suburban farmstore [sic] and the driveway of the CSA farm.”²² The distributions were set up like farmers’ markets and run by a member-coordinator, but shareholders felt it was disorganized. The shareholders brought their own bags, chose their own produce, weighed their own produce, and bagged their own shares. This CSA program required every member to volunteer 4 hr at a distribution location during the season. A common theme from the interviews showed the enjoyable social aspect of the distribution. Another common theme from the interviews was creative cooking was required to use the produce provided in the shares. However, some shareholders had difficulty coming up with new recipes, and the produce went to waste. It is important to introduce new produce to shareholders but also to provide them with recipes and cooking demonstrations on what to do with the produce. This will result in a higher chance of the produce being used. Many shareholders were disappointed in the produce variety and did not show up to collect

their shares. The authors stated that the greatest issue for this CSA program was poor management and low productivity. In the future, when developing a CSA program attention needs to be given to the distribution sites and in-home cooking.²² By assessing in-home cooking, one can determine what produce will most likely be used. Providing the shareholders with the produce they use, when possible, will increase the chances the produce will be consumed. Some ways to determine how to set up a distribution site for a CSA program are to look at the strengths and weaknesses of farmers' markets.

2.6 Farmers' Markets

Farmers' markets are defined as when multiple farmers come to one location and sell their produce. They create an environment for the community to access locally grown and fresh produce. Farmers and consumers benefit from these markets. An accessible outlet is created for consumers to purchase high-quality produce, and farmers have an opportunity to increase their business. Some farmers' markets accept SNAP benefits, making fresh produce available to those who typically have limited options when buying produce. However, not all farmers' markets are equal. Some farmers' markets sell goods other than produce, for example, jewelry, crafts, baked goods, and hot sandwiches. Not everything sold at a farmers' market is eligible for purchase by using SNAP benefits.

2.6.1 Research on Farmers' Markets

Ruelas and colleagues²⁶ investigated two farmers' markets new to low-income communities in South and East Los Angeles. They surveyed customers to assess utilization of the market and perceived benefits. Both farmers' markets accepted

SNAP/EBT, WIC vouchers, and Senior Farmers' Market Nutrition Program (SFMNP) checks. However, data were not collected on the use of SNAP/EBT form of payment. Results showed that 18% of South Los Angeles and 27% of East Los Angeles customers used WIC or SFMNP vouchers. Overall, the customers felt the farmers' market contributed to healthy eating due to its close proximity to their home and improved their access to fresh fruits and vegetables. This study displays the importance of location when creating a farmers' market or CSA distribution site. Another finding from this study was African-Americans were underrepresented at the farmers' market. African Americans represent 42% of the South Los Angeles population, but only 18% of the customers at the South Los Angeles farmers' market were African American. More research should go into what would motivate African Americans to utilize a farmers' market and CSA programs. The researchers stated possible areas to examine are social, economic, and cultural aspects of African Americans.

Racine et al²⁷ examined farmers' market use among African-American women participating in WIC. This study used WIC participants from Washington, DC and Charlotte, NC. Surveys were used to assess the use of farmers' markets at each location. The most common reason for not using the farmers' markets was they were not conveniently located. Another common response was they did not know the farmers' market's exact location. The researchers also found those who received program vouchers redeemable at the farmers' markets were more likely to return to farmers' markets. One limitation to this study was the small sample size, making it difficult to generalize to the population. Further research is needed to see if participants return to the farmers' markets with their own money or if vouchers are

needed. This study indicates the importance of placing farmers' markets in convenient locations for all demographics. The location of the farmers' market also needs to be explained clearly so people can access it.

Another research study that investigated farmers' markets was The Veggie Project.²⁸ The purpose of this study was to provide an in-depth explanation on how to initiate a farmers' market. The Veggie Project addressed the availability, accessibility, and affordability of fresh fruits and vegetables in four low-income, minority, urban communities in Nashville, TN. The Veggie Project used three components to increase fresh fruit and vegetable exposure: onsite farmers' markets, a Super Shopper Program, and a Youth Leader Board (YLB).

The onsite farmers' markets increased the availability and accessibility of fresh fruits and vegetables. The farmers' markets were located next to The Boys and Girls Club making it accessible for the YLB. The Super Shoppers Program made fresh fruits and vegetables affordable by providing the shoppers with money vouchers after completing a survey. The YLB gained knowledge about fresh fruits and vegetables along with job-related skills from assisting with the farmers' market.

Qualitative data suggested that The Veggie Project had a positive impact on health-promoting behaviors on the YLB. The YLB enjoyed the opportunity to help out at the farmers' market. When creating a farmers' market or CSA distribution site it is important to include children. Including children creates a positive learning experience. The children gained job-related skills and increased their knowledge on the importance of fruits and vegetables.

The authors were unable to determine the influence The Veggie Project had on dietary behaviors. They assumed the produce purchased was consumed. Future

research is needed to determine if farmers' markets or CSA programs have an impact on dietary behaviors, especially in the low-income population. The majority of the revenue from the farmers' market came from the Super Shoppers vouchers. Freedman and associates²⁸ suggested future farmers' markets should have an incentive program for the Super Shoppers to promote the use of personal money to buy produce. This will help create market sustainability. The Veggie Project highlights the importance of including youth in the development of the farmers' market along with financial incentives to increase participation. The Veggie Project addresses the availability, accessibility, and affordability of fresh fruits and vegetables to a population who typically consume low amounts of fresh fruits and vegetables.

2.7 The Need for Future Research

Future research is needed on CSA programs that accept SNAP benefits. When creating these CSA programs, it is important to consider location and making distribution sites accessible. The community needs to have a clear understanding where the distribution site is and multiple forms of transportation to get there. It is important to have cooking demonstrations and recipe cards to provide the participants with ideas of what to do with the fresh fruits and vegetables purchased. A CSA program needs money from sources other than SNAP benefits to keep the program running. The program and the distribution of the shares need to be well organized. A strong motivator for community involvement is through children. It is important to create a CSA program that appeals to children just as much as it appeals to their parents. Future research is needed to see how a CSA program that accepts SNAP benefits affects dietary behaviors.

Chapter 3

SPECIFIC AIMS

3.1 Statement of Problem

There are a substantial number of people who suffer from hunger in the United States. The government provides assistance to those in need. However, those in need have limited options on ways to improve their diets, especially in the area of fresh fruits and vegetables. Farmers' markets have begun to accept SNAP benefits and some CSA programs accept SNAP benefits. However, CSA programs still cost a substantial amount of money. There is limited research on CSA programs that accept SNAP benefits. Research is needed to discover how to create a sustainable CSA program that accepts SNAP benefits at a low price per share. Research is also needed to observe how belonging to a CSA program influences fresh fruit and vegetable intake in a low-income population.

3.2 Purpose

The purpose of this study was to evaluate the Food Bank of Delaware Community Supported Agriculture (FBD-CSA) program, a specialized CSA program that accepts SNAP benefits at a reduced rate in exchange for a share.

3.3 Specific Aims

The primary aim of this study was to evaluate the success of a CSA program, based on the program's objectives and goals, that accepts SNAP benefits at a reduced rate.

The secondary aim was to determine the influence a CSA program had on fresh fruit and vegetable intake in a low-income population.

3.4 Research Questions

1. How successful was the FBD-CSA program?
2. How does belonging to the FBD-CSA program affect fresh fruit and vegetable intake in a low-income population?

Chapter 4

DESCRIPTION OF THE FBD-CSA PROGRAM

There are twelve CSA programs in the state of Delaware.²⁴ A 13th CSA program sponsored by the Food Bank of Delaware (FBD) began in the summer of 2013. The FBD-CSA program created an opportunity for the low-income population to be a part of a CSA program by accepting SNAP benefits and not requiring total share payment upfront.

The FBD-CSA program is funded mainly by a grant from the USDA, and also with funds from the Delaware Department of Agriculture (DDA). Donations, from sponsor shares, will provide a small amount of assistance. The FBD-CSA program provided shares to those on SNAP benefits for \$10/full share or \$5/half share each week because of the funding provided by the grant. SNAP participants paid for their share by using their EBT card or cash each week when they picked-up the produce. A full share provided enough produce for four people for 1 week. This program was 18 weeks long between June 20, 2013 and October 17, 2013. Pick-ups were every Thursday from 4-7 p.m. rain or shine. SNAP participants who chose to join the FBD-CSA program received an incentive of \$10 or \$5 in market tokens depending on the cost of their share. Market tokens could be redeemed at other vendors at the Wilmington Farmers' Market at Cool Spring Park. Other incentives included recipes in the weekly newsletter and cooking demonstrations at share pick-ups.

The FBD-CSA program had an agreement with Highland Orchards and SIW Vegetables to provide produce for the shares. Highland Orchards is located at 1431

Foulk Road in Wilmington, DE. SIW Vegetables is located at 4317 South Creek Road in Chadds Ford, PA. Both farms sold shares to the FBD at \$400/share. Highland Orchards agreed to set aside 84 FBD-CSA shares: 59 shares for SNAP participants and 25 shares for FBD donors. SIW Vegetables agreed to set aside 83 shares: 58 shares for SNAP participants and 25 shares for FBD donors. The FBD sold the 50 shares to FBD donors at \$500/share. The extra \$100 went to the FBD as a donation and was tax deductible for the FBD donor. The \$5,000 the FBD made from the donor share purchases went towards the sustainability of the FBD-CSA program.

The distribution of the shares took place at Wilmington Farmers' Market at Cool Spring Park located on West 10th Street & North Van Buren Street in Wilmington, DE. West End Neighborhood House Bright Spot Venture's (BSV) program coordinator and youth workers manage the Wilmington Farmers' Market. The BSV program offers realistic work experience to those who are aging out of foster care. A BSV worker was assigned to the FBD-CSA program to assist with the share distribution. West End Neighborhood House agreed to accept the FBD-CSA program's distribution table at the farmers' market.

As the principal investigator (PI), I created a few assessment materials and administered them to the participants. I performed the analysis of the survey materials and evaluated the FBD-CSA program based on the program's goals and performance objectives.

The FBD-CSA program set goals and objectives as dictated by the funded USDA proposal. Intended outcomes were also generated prior to the start of the FBD-CSA program.

4.1 Project Goals

1. To provide low-income communities with a reliable supply of fresh, local, affordable, and sustainable produce.
2. To introduce low-income communities to local farmers through incentivized access to a farmers' market in their community.
3. To support the local agricultural economy.

4.2 Performance Objectives

1. To support the expansion and sustainability of a designated farmers' market.
2. To provide food and nutrition education on the safe handling and preparation of fresh produce as well as the health benefits.
3. To introduce the use of EBT machines into farmers' markets.
4. To establish a unique revolving loan fund that allows low-income individuals to participate in FBD-CSA program without the upfront cost.
5. To collaborate with local farmers to configure a defined number of shares with smaller poundage available at a lower price.
6. To increase avenues for donor opportunities to support an FBD-CSA share.
7. To increase farmer interest and willingness to accept EBT transactions.
8. To create an outreach campaign marketing the benefits of CSA programs to the low-income populations.
9. To involve the Bright Spot Venture Youth Workers who have aged out of foster care as an employment training opportunity through the operation of the FBD-CSA program.

4.3 Intended Outcomes

1. 100-200 low-income families will be provided with fresh produce over an 18-week period (numbers depend on whether the shares would be split based on individual needs of shareholder).
2. Fifty additional donors will be identified to purchase shares independent from the FBD in support of the FBD-CSA program.
3. Two local farmers will have a minimum increase in revenues of \$46,000 based on the 117 low-income shares each year and the opportunity for an additional \$20,000 from the additional 50 shares to FBD donors.
4. An EBT machine will be established at one farmers' market.
5. The revolving loan program will operate in the black by the end of the year 3 grant period through EBT client payback and generating community support for the program.
6. Farmers at the designated farmers' market/CSA distribution site will accept the token incentive plan and benefit from the additional customer base.
7. Two BSV youth will participate in the program gaining valuable employment training.
8. Nine nutrition education events will be implemented at the site of FBD-CSA share distributions.
9. \$18,000 of EBT benefits will be recovered.
10. Participants and farmers will express satisfaction with program.

Chapter 5

METHODS

5.1 Description of Participants

The target population was the low-income population that resided in 19805 and 19806 zip code districts of the city of Wilmington, DE. The sample included those who participated in the FBD-CSA program. Participation was on a volunteer basis. To be eligible for discounted shares one had to receive SNAP benefits.

A focus group was held once the program ended to learn selected participant's opinions about the produce, recipes, and overall market experience of the FBD-CSA program. Participation in the focus group was on a volunteer basis. Ten English-speaking participants who attended the FBD-CSA program the most were selected.

Key informants were another subject group assessed. Key informants included the FBD employees, the BSV worker, and the other vendors who participated in the Wilmington Farmers' Market at Cool Spring Park. The two farmers who provided the produce for the FBD-CSA program were also surveyed to learn their opinion of the program.

All participants were informed about the purpose of this study, and the risks and benefits involved. All participants provided consent by completing the pre-survey. The University of Delaware's Institutional Review Board's (IRB) approval was obtained for this study.

5.2 Description of Instruments

A pre-survey, developed by a group of investigators including the PI, was conducted with the SNAP participants. Face validity of the pre-survey was determined by an expert panel review. The majority of the questions were open-ended. Some open-ended questions were demographic questions about number of people living in the household and race. Two questions were closed-ended with a multiple-choice response. One question asked about ease of access of obtaining fresh fruits and vegetables into the home. The three options to choose from were easy, somewhat difficult, and very difficult. The other close-ended question asked about confidence in preparing fruits and vegetables. The three options to choose from were confident, a little confident, and not confident. The question on fruit and vegetable intake stated, “One serving size of fruits or vegetables is about the size of your fist. How many servings per day do you and those in your household usually eat?” The inclusion of the fist as a visual of one serving came from the National Institutes of Health website, MedlinePlus.²⁹ See a copy in Appendix A. The post-survey had the same questions as the pre-survey. See a copy in Appendix B.

The consent form for the focus group described why they were being selected for the focus group and what to expect during the focus group. The consent form provided the participants with the time and place of the focus group and where to direct any questions that arose. See a copy in Appendix C. The focus group script was face validated and made-up of 11 short open-ended questions to keep the session on track. Questions on benefits of the FBD-CSA program and changes needed to the FBD-CSA program were included. The script had questions on the market tokens and the weekly newsletters. See a copy in Appendix D.

The same group of investigators developed the key informants questionnaire. This survey was face validated and made up of eight short open-ended questions. The questions asked about the individual's role in the FBD-CSA program and what benefits the FBD-CSA program offered the individual. The key informants questionnaire also asked what problems arose during the FBD-CSA program. See a copy in Appendix E.

A different survey was conducted with the two farmers who participated in the program. That questionnaire was face validated and made-up of six short open-ended questions. The questionnaire asked the farmers about their likes and dislikes of the FBD-CSA program. The questionnaire also asked what recommendations the farmers have for the FBD-CSA program. See a copy in Appendix F.

A postcard was sent to participants who filled out a pre-survey and never attended a share pick-up. The postcard was one close-ended question asking the participant the reason for not attending a share pick-up. The choices to select were: too time consuming, too expensive, lack of transportation and other. There was a line next to the choice "other" for people to write in their reason. See copy in Appendix G.

Another postcard was sent to participants who attended on average two share pick-ups and then never came back. The postcard was also one close-ended question with the choices of: too time consuming, too expensive, lack of transportation, unhappy with produce selection, and other. The postcard also had a line next to the choice "other" for people to write in their reason. See copy in Appendix H. A self-addressed stamped envelope was mailed with each post card.

5.3 Procedures

Subjects were recruited using advertisements created by the FBD. Recruitment was designed and conducted by the FBD-CSA program coordinator, community nutritionists, and staff/volunteers from two food pantries at Lutheran Community Services and one food pantry at West End Neighborhood house. Advertisements include brochures mailed to homes. See copy in Appendix I.

Interested individuals contacted the FBD to sign-up. If the inclusion criterion was met the subjects were eligible to sign up for the FBD-CSA program. The inclusion criterion was self-reporting receiving SNAP benefits. From February to June the FBD-CSA staff conducted the pre-survey. The pre-survey was conducted by telephone or by a mailed paper survey. Pre-surveys were also collected in person, starting in June, when a new participant joined the FBD-CSA program prior to September. The PI conducted the post-survey after the program ended in October in person or by telephone.

The FBD-CSA staff recorded the participants who came to each share pick-up, EBT activity, donor activity, and farmer income generated. EBT activity was tracked by the West End Neighborhood House and shared with the FBD-CSA staff.

The PI selected 12 people who attended the most share pick-ups and spoke English to participate in a focus group. These participants were purposively selected because they can provide the most information for the PI. The 12 participants were notified they were selected for a focus group at the last share pick-up on October 17, 2013. The focus group was conducted by the PI at West End Neighborhood House the following Thursday after the FBD-CSA program ended. While using the face validated focus group script the session was audiotaped with an assistant taking notes during the session. Light refreshments were provided at the focus group. An incentive

for contributing their opinion was a \$10 Kmart gift card when the focus group was complete. After the session the assistant and the PI compared notes to confirm first impressions of the focus group. Then the focus group audiotape recording was transcribed with the notes taken by the assistant to be used for analysis.

The PI conducted the key informants survey by telephone and mail in October and November. The PI carried out the farmers' questionnaire by telephone in October. The two postcards were mailed to SNAP participants with a self-addressed stamped envelope in October by the FBD staff.

5.4 Data Analysis

Answers between the pre-survey and the post-survey were compared to determine the success of the FBD-CSA program. Analyses were performed using JMP Pro 11.0 (2013, SAS Institute Inc., Cary, NC). Demographics were summarized using frequencies. The confidence of preparing fruits and vegetables and the ease of access to fruits and vegetables were assessed using frequencies from the 45 matched pairs of pre-surveys and post-surveys. The fruit and vegetable servings from the pre-surveys of those who attended the FBD-CSA program and those who did not were compared using a χ^2 test. The fruit and vegetable servings from the pre-survey of those who completed a post-survey were compared to those who did not complete a post-survey using a χ^2 test. To assess the difference in fruit and vegetable intake between the pre-survey and the post-survey a χ^2 test was performed along with a Wilcoxon Rank Sum test. Fruit and vegetable servings from the post-survey were compared with race using a χ^2 test. The same test was used to evaluate fruit and vegetable servings from the post-survey with households with children to households without children. All χ^2

tests used the Fisher Exact test for significant p values. Significance was set at the $p < 0.05$ level.

Two independent researchers conducted the theme review for the focus group. The qualitative data from the key informant surveys and farmer questionnaires were read and included in the results as they appeared on the surveys.

Chapter 6

RESULTS

6.1 SNAP Participants

The FBD-CSA program had 208 participants throughout the 18 weeks. Eighty-four participants filled out a pre-survey and attended at least one FBD-CSA program share pick-up. Another 41 participants expressed interest in the program by filling out a pre-survey but they never attended a share pick-up. Forty-five post-surveys were completed with a matched pre-survey. See Figure 1.

Demographic results are based on the 45 matched pre-surveys and post-surveys. Fifty-one percent (n=23) of the participants were African American, 24% (n=11) were White non-Hispanic, and 22% (n=10) were Hispanic. Twenty-five of the 45 (56%) participants received a full share. Thirty-six percent (n=16) of the participants lived alone and 47% (n=21) of the households had at least one senior citizen living in them. See Table 1.

The confidence of preparing fresh fruits and vegetables was compared from the 45 matched pre-surveys and post-surveys. The results were not normally distributed so significance could not be determined. During the pre-survey 82% (n=37) of participants were confident in preparing fruits and vegetables, 18% (n=8) were a little confident and none (n=0) stated not confident. During the post-survey 87% (n=39) were confident in preparing fruits and vegetables, 9% (n=4) were a little confident, and 4% (n=2) were not confident. See Table 2.

The ease of access to fresh fruits and vegetables was compared from the 45 matched pre-surveys and post-surveys. The results were not normally distributed so significance could not be determined. During the pre-survey 36% (n=16) of participants said it was easy to access fresh fruits and vegetables, 44% (n=20) said it was somewhat difficult, and 16% (n=7) said it was very difficult. During the post-survey 53% (n=24) of participants said it was easy to access fresh fruits and vegetables, 44% (n=20) said it was somewhat difficult, and none (n=0) said very difficult. See Table 3.

The average number of times participants attended the share pick-up (excluding those who never attended) was 6 times. Nine participants attended all 18-share pick-ups, which was 4% of the participants. Thirty percent (n=74) of participants attended one share pick-up and never returned. See Table 4.

A χ^2 test of the fruit and vegetable servings recorded on the pre-survey was compared between those who attended the FBD-CSA program and those who did not attend the FBD-CSA program. From the pre-surveys completed, 84 participants attended the FBD-CSA program and 41 participants did not attend the FBD-CSA program. Since it was a small sample size a Fisher's Exact Test was done, resulting in a p value of 0.6589. There was not a statistically significant difference in fruit and vegetable servings in those who attended the FBD-CSA program and those who did not. See Table 5.

A χ^2 test of the pre-survey fruit and vegetable servings was compared to those who completed a post-survey and those who did not complete a post-survey. From the 84 participants who completed a pre-survey and attended a share pick-up, 45 participants completed a post-survey and 39 participants did not complete a post-

survey. Since it was a small sample size a Fisher's Exact Test was used, resulting in a p value of 0.7028. There was not a statistically significant difference in fruit and vegetable servings between those who completed a post-survey and those who did not. See Table 6.

A χ^2 test was performed on the fruit and vegetable servings from the 45 matched pairs of pre-surveys and post-surveys. During the pre-survey, three (6.6%) participants were eating five or more servings of fruits and vegetables per day. During the post-survey, seven (15.5%) participants were eating five or more servings per day. Due to the small sample size the Fisher's Exact Test was completed, resulting in a p value of 0.3213. There was not a statistically significant difference between fruit and vegetable servings between the pre-survey and the post-survey but still an increase in fruit and vegetable servings. See Table 7. The median number of fruit and vegetable servings during the pre-survey was 2 and the median number of fruit and vegetable servings during the post-survey was 3. A Wilcoxon Rank Sum Test showed there was no statistically significant difference between the medians with a p value of 0.1062. However, there was movement in the right direction. See Table 8.

A χ^2 test was performed on fruit and vegetable servings from the post-survey and race of the participants. Within African Americans, two (8.8%) participants ate five or more servings of fruits and vegetables. Within Hispanics, two (20.0%) participants ate five or more servings of fruits and vegetables. Within Whites, three (27.3%) participants ate five or more servings of fruits and vegetables. Due to the small sample size a Fisher's Exact Test was done, giving a p value of 0.7056. There was no statistically significant difference between servings of fruits and vegetables and race. See Table 9.

A χ^2 test was completed to compare post-survey fruit and vegetable servings to households with children compared to households without children. Four (16.7%) participants with children consumed five or more servings of fruits and vegetables. Three (14.3%) participants without children consumed five or more servings of fruits and vegetables. Due to the small sample size a Fisher's Exact Test was completed, resulting in a p value of 0.5584. Therefore, there was no statistically significant difference between fruit and vegetable servings and households with children compared to households without children. See Table 10.

No postcards were returned from the participants who completed a pre-survey and never attended a share pick-up. No postcards were returned from the participants who attended less than three share pick-ups and then dropped out of the FBD-CSA program.

6.2 Focus Group of SNAP Participants

The focus group was made up of eight females and two males and lasted 50 minutes. The focus group was held at West End Neighborhood house in Wilmington, DE. The group was asked a total of 11 questions. The major themes throughout the focus group were: enjoyment, appreciation, economic benefit/affordability, lack of organization, and safety concerns about the site.

6.2.1 Enjoyment

The participants enjoyed a variety of things about the FBD-CSA program. When they were asked about what benefits the program provided and the responses included they were able to eat healthier, the vegetables were fresher than what they get at the supermarket, and it was nice to get an abundance of different fruits and

vegetables. The participants in the focus group also stated enjoying the market tokens they received each week. They would use them for products other than produce, for example, scrapple, eggs, honey, and bread. When asked about the weekly newsletters, the participants said the newsletters were great and they loved the recipes included. The participants also stated the nutrition information was helpful and they shared that information with their friends. When the participants were asked if they would participate in the FBD-CSA program next summer the response was a unanimous yes.

6.2.2 Appreciation

The participants expressed their appreciation for the program by saying the FBD-CSA program was a good learning experience. They said the program introduced them to new vegetables and provided them with the opportunity to meet local farmers. The participants also valued the chance to have produce with a “natural feel” because it still had dirt on it. The participants were thankful to know the produce came from local farms with minimal pesticides. The participants also said they appreciate the FBD for their hard work, understanding, and caring.

6.2.3 Economic Benefit/Affordability

The main benefit the participants expressed towards the FBD-CSA program was they had access to produce they would not normally be able to afford. The participants suggested having a larger share option, for example \$5 shares, \$7 shares, and \$10 shares. Some felt the half share was too small and the full share was too large so there should be a share in between. They were asked if they would participate in the program next summer if it went to a token only system. The response was a unanimous no. The participants felt the vendors’ prices were high. The participants

were unable to get change for the tokens and they felt the vendors priced their products so they could make extra money. A token only system would not be beneficial for the FBD-CSA program in 2014.

6.2.4 Lack of Organization

The participants felt the payment system was not organized. Some participants believed they were charged for the same week twice and said it was not clear what week you were paying for. The participants stated they wanted other pick-up locations. Also, the participants wished the food demonstrations started earlier because they were leaving when the food demonstration was setting-up. The participants stated it would have been beneficial for the FBD-CSA program to include information on canning and freezing the produce.

6.2.5 Safety Concerns About Site

Other participants reported being worried about opening their purse to pay for the share in Cool Spring Park. The participants found the cracks in the sidewalk difficult to maneuver, especially with participants with wheelchairs, walkers, and oxygen tanks. Some participants did not have trouble getting to and from the market and others did. Those who did find transportation difficult said it was hard to find a parking spot and sometimes you had a long walk back to your car with the heavy produce. The participants stated they wanted a police officer or security present at Cool Spring Park. They also thought having a first aid tent would be helpful.

6.2.6 Complaints

The participants said the first 3 weeks of the program the produce was very limited in quantity and variety, especially for the half shares. Participants also stated

when the season is not good in the beginning every participant should receive 10 tokens. The participants felt the half shares and the full shares should receive the same produce, except the half share should receive a smaller amount. They were very vocal about the dissatisfaction of the full shares and half shares not receiving a watermelon the same week. Some other complaints include adding more fruit and herbs to the shares. The participants also said the FBD staff needed to be more careful when packing the shares. They were not happy when the corn was placed in the bag crushing the other produce.

6.3 Key Informants

6.3.1 Farmers

Farmer 1 reported providing produce for the FBD-CSA program was enjoyable because it gave the farmer a guaranteed sale of product. Farmer 1 did not have any dislikes about providing produce for the FBD-CSA program. Farmer 1 stated a benefit of the FBD-CSA program was customers liked knowing the FBD was a beneficiary of the farm's products. When asked what challenges the FBD-CSA program brought to your farm, farmer 1 replied with difficulty at the beginning of the season with determining what produce to provide for each share. Farmer 1 had to re-organize how to divide the shares from 75 large shares to 150 small shares. Some recommendations farmer 1 suggested for the FBD were to provide the farm with feedback on what produce the customers liked and disliked so the farm can plan accordingly in the early winter for next season. Farmer 1 indicated wanting to participate in the FBD-CSA program in the future.

Farmer 2 reported providing produce for the FBD-CSA program gave the farm the opportunity to sell more produce. Farmer 2 found it convenient to provide the produce in bulk and have the FBD staff divide it up amongst the shares. Farmer 2 said the FBD staff was disorganized and had little communication on arranging produce pick-ups. Farmer 2 also felt the FBD staff did not explain the concept of a CSA program to its participants. Farmer 2 said there were numerous complaints from the FBD staff about the lack of produce in the beginning of the program and providing corn week after week. Farmer 2 stated a benefit of the FBD-CSA program was the profit on 70 extra shares being sold. Another benefit was the ability to use lower grade produce in the shares. A challenge the FBD-CSA program created for farmer 2 was coordinating the pick-up of produce from the farm by the FBD staff. Every week farmer 2 had to call the FBD staff to find out what time someone would be there. Farmer 2 recommends more communication between the farmer and the FBD staff. Farmer 2 also recommends better communication from the FBD staff to their participants on what a CSA entails. Farmer 2 indicated interest in participating in the FBD-CSA program in the future.

6.3.2 Farmers' Market at Cool Spring Park Vendors

For the entire season 30 vendors participated in the Wilmington Farmers' Market at Cool Spring Park. Each week, on average, 22 to 24 vendors attended the farmers' market. Of those vendors, 13 vendors were able to accept the market tokens the SNAP participants received. The vendors who were eligible to accept the market tokens were surveyed for their opinion on the FBD-CSA program. The other vendors who sold prepared foods at the farmers' market were not surveyed because they were

not able to accept the market tokens. Six (n=13) vendors responded, giving a response rate of 46%.

The vendors were asked what benefits the FBD-CSA program provided your organization. Two vendors said the program did not provide them with any benefits. Four vendors said the FBD-CSA program provided them with more customers to purchase their products who may not typically buy them. The next question inquired how the FBD-CSA program benefitted the households of those purchasing the shares of produce. The response was the program provided low-income families with the opportunity to purchase fresh produce. Then the vendors were asked how the FBD-CSA program benefitted the community. The vendors said the program “opened the farmers’ market to members of the community who would normally be excluded.”

The vendors were then questioned about what concerns their organization had during the development of the FBD-CSA program. Four vendors reported not having any concerns. One vendor had the concern of how the FBD was going to recruit low-income families to join the program. One vendor was concerned how his stand was going to be able to sell the same produce that was in the shares. The vendor reported not being able to sell cherries when the FBD-CSA share included cherries.

The sixth question addressed what problems arose during the implementation of the FBD-CSA program. Two vendors reported having no problems. One vendor was confused about which items the tokens could be used for due to the SNAP restrictions. One vendor had difficulty selling their produce until word of mouth got around how much others liked their produce. Another vendor reported the long delay of reimbursement of the market tokens. One vendor said the FBD was supposed to have cooking demonstrations every week at the market for all participants in lieu of

the 5% market participation fee; however, the FBD only had nine cooking demos of the 18 weeks of the farmers' market.

The next question inquired if the vendor knew of any organizations that could strengthen the program. Three vendors reported not knowing of additional organizations. One vendor said "increasing cooperation with the centers where the participants were recruited would help improve visibility of the program and retention of participants." One vendor suggested finding entertainment that could attract more customers.

The final question asked for suggestions on changes for the second year of the program. Three vendors did not suggest any changes for year two. One vendor suggested an expansion of the token system but did not further clarify. Another vendor suggested starting the farmers' market in May and feels the market beginning in June is late in the season compared to other local farmers' markets.

6.3.3 Food Bank of Delaware Employees

Four FBD employees were involved in the creating and implementing the FBD-CSA program. Those employees were assessed to determine the strengths and weaknesses of the FBD-CSA program. Four FBD employees completed the survey, with a response rate of 100%. The survey consisted of eight questions.

The first question asked for their role in the FBD-CSA program. One employee was the program director, another was the program coordinator, and the third was the program associate, and the fourth employee assisted in writing the grant. The second question addressed what benefits the FBD-CSA program offered the FBD. One FBD employee stated "the CSA program has developed into the marquee program at the FBD highlighting not only the organization's commitment to increased access to fresh

and local produce to our clients, but also to innovative programming to more effectively execute our mission.”

The third question inquired how the FBD-CSA program benefited those purchasing the shares. A variety of benefits were compiled:

- Increase and/or consistency in consumption of fresh local produce received in the CSA as well as with the SNAP incentive token dollars
- Exposure to the local agriculture community
- Monetary incentives to receive additional products from the market vendors
- Having the opportunity to come out and enjoy the fresh air at the market, along with entertainment
- Social interaction
- Introduction to or encouragement of the food source of a farmer’s market
- Provided access to those who typically were unable to afford fresh produce
- Additional nutrition information, menu ideas, and preparation knowledge

The fourth question asked how the FBD-CSA program has benefited the community. The FBD employees found the program to:

- Bring positive foot traffic to an under-utilized park space
- Helped create a greater sense of community

- Increased the economic dollars for a local non-profit for their management of the farmer's market as well as hiring one of their clients
- Increased income for local vendors of the farmer's market
- Increased income of two local farmers that provided the CSA shares
- Exposed more people to local artists and cultural options in Wilmington (i.e. musicians, Children's theatre, Brandywine Zoo)

The fifth question addressed what concerns raised during the development of the program and how were they handled. Those include:

- How to fund the program – worked with UD Professor and Board member and grant was written for USDA Community Foods Project and Specialty Crop Grant from State of DE.
- How to manage logistically – Programs worked with Operations and the logistics could be managed.
- How to recruit interested participants – community programs were contacted to help with recruitment.

The sixth question inquired about what problems arose during the implementation of the FBD-CSA program and how were they handled. The FBD staff reported:

- SNAP Participant Retention – brought on new clients throughout the program.
- Farmer supply/variety of product – Program Coordinator had conversations with the farmer in reference to our expectations and Memorandum of Understanding between our organizations. Produce

supplied improved but we were not completely satisfied with first having to have the conversations and also that the farmer was sourcing from a local auction. Even though all the produce was local produce.

- Produce preservation and transport problems – trying new packaging and figuring a way to stack the bags so the delicate greens and tomatoes were not crushed.
- Long lines for share pick-ups – by switching to an index card system instead of using laptops. Payments were processed more quickly this way. Also, by encouraging participants to come anytime during pick-up hours by ensuring their share was reserved.

The seventh question asked about ways to strengthen the program. A FBD employee said, “More funding from private organizations could be used for better promotional and marketing material.” Another FBD employee suggested multiple distribution locations each week.

The eighth question inquired about suggestions for changes in the second year of the FBD-CSA program. The FBD employees developed this list:

- More detailed member agreements – to more carefully select members who are more likely to stay with the program
- Refundable Cash Deposit - This year it was a “pay a week ahead” system that didn’t go over very well. It made some participants feel insulted. Next year the FBD staff will try a refundable deposit system
- No extreme variation of share sizes. The FBD will utilize local auctions if necessary. The FBD may cut out the purchase of CSA shares from farms and buy bulk produce from several sources.

- Adding two new farms to reduce risk of crop loss.
- Identify a second pick-up location for community members. Possibly in the Dover area.
- Make a reliable form of communication a requirement to participate in the FBD-CSA program, either phone or email.

Overall, the FBD employees thought the FBD-CSA program had a successful first year with room for improvement next season.

6.3.4 Bright Spot Venture Worker

The FBD staff worked with one BSV worker because the FBD staff thought it would be more consistent for the FBD-CSA program and its participants. The BSV worker actually coordinated the volunteers to pack the produce into the bags from 9 to 12 p.m. Then in the afternoon from 4 to 7 p.m. the BSV worker helped set-up the FBD's stand, pass out the shares, take payments, and help with activities. The BSV worker was paid \$8 an hour through BSV. BSV billed the FBD for reimbursement.

The BSV employee filled out a key informant survey. The BSV worker thought the FBD-CSA program brought more people to the market. The employee felt the program benefitted the households of the participants by allowing them to receive produce at a very low cost, which could result in a healthier lifestyle. The BSV worker felt the FBD-CSA program benefitted the community by creating easier access to fresh produce. One concern that presented during the FBD-CSA program, according to the BSV employee, was the lack of food demos during the program. The worker felt the BSV program could help the FBD-CSA program by advertising. A change the employee suggested was informing participants to come anytime during the market hours to pick-up their share to reduce the wait time.

6.4 Review of Goals & Objectives

The project goals, performance objectives, and intended outcomes that were established when the grant was written were evaluated at the end of the program. The majority of the project goals and performance objects were achieved throughout the FBD-CSA program. The only performance objective that was unable to be determined was to increase farmer interest and willingness to accept EBT transactions due to an oversight of the PI. This could not be evaluated because it was not included in the key informants survey. One performance objective that was not achieved was establishing a revolving loan fund. A revolving loan fund was not created due to the 100% reimbursement of the market tokens; no money was made back from the SNAP participant shares. See a Table 11 for a full list of the project goals, performance objectives, and intended outcomes along with the actual outcome.

Chapter 7

DISCUSSION

7.1 SNAP Participants

There was no statistically significant difference in fruit and vegetable intake between those who attended the FBD-CSA program and those who did not. High fruit and vegetable intake could not be determined as a motivating factor to participate in the FBD-CSA program. Cohen and associates²⁰ suggest the majority of CSA participants are diet conscious. The authors found a statistically significant difference in fruit and vegetable consumption of 2.2 servings/week in those who participated in the CSA. However, our study surveyed fruit and vegetable intake per day, and found no statistically significance findings even with similar sample sizes.

There was no statistically significant difference in fruit and vegetable intake between those who completed a post-survey and those who did not. When comparing the pre-survey fruit and vegetable intake to the post-survey fruit and vegetable intake, no statistically significant results were found. The median of fruit and vegetable servings from the pre-survey to the post-survey went from 2 servings to 3 servings. Although not statistically significant, fruit and vegetable intake was moving in the right direction. Cohen and colleagues²⁰ predicted starting with less healthy dietary patterns could result in more dramatic positive changes between the pre-survey and the post-survey. That was not seen in this sample. No statistically significant results were found when comparing fruit and vegetable intake based on race or households with children.

When comparing confidence in preparing fruits and vegetables from the pre-survey to the post-survey two participants gained confidence. However, at the same time two participants lost confidence in preparing fruits and vegetables. A reason for two participants losing confidence could be a result of receiving produce in the share they have never seen or prepared prior to the FBD-CSA program. Hayden and Buck²² reported when the CSA participants received produce they have never seen before the participants found it difficult to create a recipe using it and the produce could have been wasted. In the FBD-CSA program cooking demonstrations and recipes in the newsletters were provided to prevent produce from going to waste.

Eight participants found it easier to access fresh fruits and vegetables after the FBD-CSA program compared to prior to the program. This could be a result of the share pick-ups being located in the SNAP participant's community. Cummins and associates³⁰ found that programs increasing the number of food outlets may improve residents' perceptions of food accessibility, but they might be less effective in changing diet. These results are similar to the results of the SNAP participants in the FBD-CSA program. Based on these statistics alone it would seem the FBD-CSA program was unsuccessful in increasing fruit and vegetable intake in SNAP participants. When the results from the focus group are evaluated it seems the FBD-CSA program was more successful, however, in perception fruit and vegetable intake was not questioned.

The focus group was made of the 10 English-speaking participants that participated the most in the FBD-CSA program. There were numerous aspects the participants enjoyed, for example, the produce. They liked the variety and the freshness of the fruits and vegetables. The SNAP participants enjoyed the market

tokens and newsletters that were a component of the FBD-CSA program. The market tokens provided the participants with more buying opportunities and allowed them to interact with local farmers that participated in the farmers' market at Cool Spring Park.

The main benefit of the FBD-CSA program was the price of the shares each week according to the focus group participants. This will be even more valuable next summer, due to the SNAP benefit cuts that went into effect once the program ended.⁵ Compared to other CSA programs, the FBD-CSA is very reasonably priced.^{7,8} The feature of accepting SNAP benefits makes the FBD-CSA program even more unique.

The focus group participants did report complaints about the FBD-CSA program. They felt the program was unorganized and found it unclear which week they were paying for. The participants also complained about how the FBD staff handled their produce. Sometimes the produce was not bagged properly or the participants were uncomfortable with them not wearing gloves when handling the produce.

Another complaint about the FBD-CSA program from the focus group was the lack of produce the first 3 weeks of the program. According to Lang,³¹ the biggest challenge of a CSA is to stagger crops so produce can be harvested throughout the entire growing season. As much as the farmers need to plan accordingly to provide adequate produce, it is equally as important for the SNAP participants to have a full understanding on how a CSA program operates. The participants need an explanation about how common it is for produce to be low in the beginning of the season and CSA participants agree to take on the risks and benefits of the farmers.

7.2 Farmers

Both farmers enjoyed providing the produce for the FBD-CSA program because of the profit made. Both farmers would have liked more communication with the FBD-CSA program director. One farmer wanted feedback on what produce to plant for next season. The other farmer wanted more communication this past season on when the produce was going to be picked up from the farm. Both farmers expressed interest in participating in the FBD-CSA program next season. It is important for the farmers and the FBD staff to get along for the strength of the program. Hayden and Buck²² investigated a CSA and found the difficult personality of the farmer led to a “less-than-ideal CSA experience for many involved.” Even though the SNAP participants were not affected by the lack of communication between the farmers and the FBD staff, next season they need to clearly state their expectations of each other prior to the start of the FBD-CSA program.

7.3 Farmers’ Market at Cool Spring Park Vendors

There was a weak response rate from the vendors who participated in the farmers’ market at Cool Spring Park. Not all of the vendors felt the FBD-CSA program benefitted their business, but some saw an increase in customers. The vendors understood the importance of the FBD-CSA program to low-income families. The vendors had complaints about the market tokens. Some thought the reimbursement time was too long. However, the FBD was responsible for reimbursing West End Neighborhood House and West End Neighborhood House reimbursed the vendors. Other vendors reported they were unsure what items were eligible to SNAP participants. Although, the vendors received training on the market tokens prior to the farmers’ market opening by West End Neighborhood House. One vendor had a

difficult time selling to FBD-CSA participants due to the price of their product and the fact that no change is given when using the market tokens. The price of one jar of jelly was \$6 and the vendor thought the market tokens from the FBD-CSA program came in \$5 increments. The vendor was approached numerous times by participants about accepting a \$5 market token for a jar of jelly. The vendor declined every time and felt it was unfair to make this exception for those who are using market tokens. The participants declined to pay \$10 in market tokens for a jar of jelly, knowing they would be losing \$4 worth of market tokens. However, the vendor was confused between the market token programs. The FBD-CSA program handed out market tokens in \$1 increments and the Senior Farmers Market Program handed out market tokens in \$5 increments. The FBD-CSA program should be more clearly explained to vendors who are interested in participating in the farmers' market at Cool Spring Park next season. This could help with vendors pricing items knowing SNAP participants cannot receive change.

7.4 Food Bank of Delaware Employees

The FBD employees found the FBD-CSA program to be very beneficial to the SNAP participants. They felt the SNAP participants' increased fresh fruit and vegetable consumption, gained farmers' market exposure, along with social interaction. However, according to the pre-survey and the post-survey there was not a statistically significant increase in fresh fruit and vegetable consumption. The farmers' market exposure and social interaction for 30% of the participants was one visit to the Wilmington Farmers' Market at Cool Spring Park.

The FBD employees felt the FBD-CSA program benefitted the community by creating a positive use for an under-utilized space and providing additional income to

those involved in the farmers' market, for example, the farmers who supplied the produce for the shares, the other vendors participating in the farmers' market, and West End Neighborhood House who manages the Wilmington Farmers' Market at Cool Spring Park. The farmers received an increase in income because of this program. The farmers' market vendors had mixed responses on if the FBD-CSA program benefitted them, even with a poor response rate. The West End Neighborhood House felt the FBD did not fulfill their agreement by provide a cooking demonstration every week of the program in lieu of the 5% market participation fee. Some aspects of the community benefitted from the FBD-CSA program and other aspects of the community did not.

The FBD employees gave their opinion on problems that arose throughout the program and how each situation was handled. The FBD staff was not satisfied with the amount and quality of produce the farmers were providing at the beginning of the program. After discussing their concerns the farmers improved their supply. Occasionally, the farmers outsourced from local produce auctions. The FBD employees were pleased with these changes. The FBD employees also experienced trouble bagging and transporting the produce to prevent damaging the fruits and vegetables. This was noticeable to the SNAP participants as it was mentioned during the focus group. Another issue the FBD employees encountered was long lines at the share pick-ups. The FBD improved wait time among SNAP participants by switching to an index card system and encouraging participants to come at staggered times. The FBD employees were able to problem solve throughout the program and gained knowledge on what changes and improvements can be made next season.

The FBD employees were asked what changes would be beneficial to make. The response included more detailed member agreements and the requirement of a reliable form of communication to ensure SNAP participant retention. The FBD employees plan to switch to a refundable cash deposit system, next season, from the “pay a week in advance” system. They hope this improves participant retention as well. Other changes include utilizing local produce auctions, adding two new farms to provide produce, and creating a second share pick-up location. With these changes the FBD employees hope to strengthen the FBD-CSA program and gain more SNAP participants.

7.5 Bright Spot Venture Worker

It was originally planned to have two BSV workers employed under the grant proposal. These two youth workers were to work directly with the FBD staff to promote the program; recruit and retain participants; create weekly produce distribution allotments; assist in weekly distribution; and overall program facilitation. According to the West End Neighborhood House, the programs offered serve current and former foster care youth ages 16-23.³² However, the FBD worked with one BSV participant who was 24 years old. It is important to incorporate youth into a healthy lifestyle program that is taking place in the youth’s community. Freedman and associates²⁸ incorporated youth, who were at least 10 years old, from the local Boys and Girls Clubs to volunteer at the farmers’ markets. The youth were responsible for running each farmers’ market including setting-up, marketing, food sales, and cleanup. The youth greatly enjoyed participating in the farmers’ markets. This youth involvement increased parental involvement because the parents wanted to support their children.²⁸ Next season, the FBD should consider incorporating the youth from

the community to participate in the FBD-CSA program. This feature could help increase SNAP participants through parental involvement.

7.6 FBD-CSA Program

7.6.1 Strengths

A strength of the FBD-CSA program was the ability to allow SNAP participants to participate in a CSA program. SNAP participants don't normally have the option to receive local fresh fruits and vegetables at the low price of \$5 or \$10 each week. Another great benefit of the FBD-CSA program was the market token incentive given each week with the purchased share. The market tokens allowed SNAP participants to receive more fresh produce and build relationships with local farmers. The FBD-CSA program increased fresh fruit and vegetable exposure to SNAP participants. They got to taste fruits and vegetables they had never tasted before, for example, common purslane.

7.6.2 Weaknesses

A weakness of the FBD-CSA program was little program retention. The participants who dropped out of the program were contacted to find out why they stopped attending, but no responses were returned. Another weakness of the FBD-CSA program was the youth involvement. The original intent of employing two BSV workers was not met and the BSV worker employed was not considered youth. The minimal number of pre-surveys and post-surveys completed was a major weakness of the FBD-CSA program. A requirement to participate in the program needed to be the completion of the pre-survey and the post-survey. It would have been a simple request to have the participants complete the pre-survey when they signed-up for the FBD-

CSA program. With a larger sample size it is possible there could have been a statistically significant increase in fruit and vegetable intake. By assessing these strengths and weaknesses the FBD-CSA program can determine ways to improve for the upcoming season.

7.6.3 Ways to Improve

A way to improve the FBD-CSA program next season is have more cooking demonstrations. The SNAP participants liked the demonstrations and the West End Neighborhood House stated there should have been more demonstrations according to their contract. Another way to strengthen the FBD-CSA program would be to create a more appealing newsletter. This past season the newsletters were black and white without pictures. Next season the newsletters could have colorful borders and pictures. There was a section in the newsletter that listed what produce was included in the share, next season pictures could be included to help participants identify the produce received. Another piece that should be added to the newsletter is how to properly preserve the produce included in the share that week, for example, canning or freezing instructions.

Gaining more SNAP participants and retaining them is very important to strengthening the FBD-CSA program. Next season, those who participated last season should try to recruit their friends to participate. According to Forbes and Harmon²¹ most CSAs market themselves through word of mouth. The FBD-CSA program needs more marketing and recruiting efforts. A possible way to attract more participants is to host a community dinner at the beginning of the season. When the community dinner was held the last week of the FBD-CSA program this past season, a lot of people noticed the tent and wanted information about the program. Another possible way to

keep participation consistent would be to have a punch card. It can serve as a reminder to pick-up the share, a confirmation that the share was paid for, and an incentive could be reward after a certain number of punches.

Finally, revisions need to be made to the pre-survey. The consumption of fruits and vegetables needs to address the individual filling out the survey. This past season the fruit and vegetable intake question asked, “how many fruits and vegetables do you and those in your household consume?” In the future the pre-survey should ask the age of the individual participating in the program. If the participant does not want to write down their exact age, there can be age ranges on the survey. The FBD employees have already considered changes to make to the FBD-CSA program next season.

7.6.4 Future FBD-CSA Program

The major change the FBD employees decided to make was not to purchase shares from the two farmers they purchased from this past season. The FBD employees are going to source the produce by going to local distributors, farmers, and produce auctions. This will require more work for the FBD employees but keep produce costs relatively low.

The market token system is also changing in the upcoming season. This past season market tokens matched 100% of what SNAP participants spent on a share. This upcoming season market tokens are going to match 50% of what SNAP participants spend on a share, for example, the \$10 (full) share will receive \$5 in market tokens and the \$5 (half) share will receive \$2 in market tokens each week. Another change the FBD plans to make to the FBD-CSA program is hold food demonstrations every week at the Wilmington Farmers’ Market at Cool Spring Park.

Next season, the shares will be stored in re-usable coolers until the participants pick them up. This will help maintain the freshness of the produce. The participants will bring their own reusable bags to transfer the produce from the cooler. This will reduce the amount of paper and plastic bags the FBD uses each week. The SNAP participants will have one additional pick-up location in Dover, DE at the Dover Farmers' Market next season.

FBD shareholders will have different payment plan options next season. A share can be paid in full for \$500, or the FBD will accept a \$100 for 5 months, or \$28 for 18 weeks. The FBD is also offering a 15% student discount on shares for college students.

For the long-term future of the FBD-CSA program it will depend on the sustainability. After the first year of the program no money was left in the fund to be used next year. The money made on the EBT benefits and cash sales of the shares was a wash because of the 100% reimbursement of the market tokens. \$136,000 was spent this past season and \$100,000 of that came from the USDA grant. \$8,500 was made from sponsor shares and the rest of the money came from a mixture of "in kind" and cash donations from a variety of sources. This past season, \$48,000 was given to the 2 farmers upfront to pay for the shares. Next season, the FBD staff is not going to pay for the shares up front and they feel they can save money by sourcing the produce from local produce auctions. The goal is to spend \$7 per week on a SNAP participant share. The FBD staff estimates each sponsor share will bring in \$15 per week. One sponsor share will cover the cost of two SNAP participant shares. By changing the share produce sourcing and changing the market tokens to a 50% reimbursement rate, the FBD staff feels the FBD-CSA program will become more sustainable in year two.

7.7 Conclusion

The number of consistent SNAP participants was not as high as the FBD employees had hoped, but for a first year program it was difficult to predict how many SNAP participants were going to participate. The FBD-CSA program met all three-project goals and seven of the nine performance objectives set at the beginning of the FBD-CSA program. One performance objective that was not met was unable to be determined due to an oversight of the PI to include farmers' willingness to accept EBT transactions in the surveys. The other performance objective that was not achieved was establishing a revolving loan fund, although, changes are to be made next season to allow for a revolving loan fund.

A limitation to this study was the small sample size making the results less generalizable. The small sample size was a result of limited ways to contact low-income individuals. Most individuals did not have an email address and some individuals provided disconnected phone numbers. This was challenging when trying to survey the SNAP participants. In future studies with low-income populations it would be better to require a survey in person when they sign-up for the CSA program. As for a post-survey it might be easier to contact the SNAP participant after they do not attend three share pick-ups instead of waiting until the end of the CSA program. If the participant attended another share pick-up that post-survey would be thrown out and another post-survey would need to be completed after another three share pick-ups were not attended.

A limitation to this study was not defining who would be considered a dropout from the program in advance. The PI created a definition during the study but there were many different ways to consider someone a drop out. Numerous participants were inconsistent in attending the FBD-CSA program, making it difficult to determine

if they should be considered a dropout. For example, one participant attended 3 share pick-ups during the summer and the last share pick-up in October.

Another limitation to this study was how fruit and vegetable intake was assessed. Although this study provided a validated serving size guideline, it would be more beneficial for a more detailed measure of dietary intake. Using an abbreviated food frequency questionnaire is a possible way to assess fruit and vegetable intake. An example of this would be the NCI Eating At America's Table Study Quick Food Scan.³³ This food frequency questionnaire asks intake questions on fruits and vegetables by dividing them into different categories. However, the tool selected for dietary intake measure must be appropriate for the low-income and Spanish speaking populations.

In conclusion, the FBD-CSA program was successful in completing most of the project goals and performance objectives for its first year. The program would have been considered even more successful if there were more SNAP participants who attended all 18-share pick-ups. For the FBD-CSA program to be successful next season there will need to be stronger program retention. Hopefully, with improvements made to the program the FBD-CSA program will be more successful next season.

TABLES

Table 1: Demographics of Participants who Completed a Pre-survey & a Post-Survey

	n	(%)
All subjects	45	(100)
Race		
White	11	(24.4)
African American	23	(51.1)
Hispanic	10	(22.2)
Other	1	(2.2)
Share size		
Full	25	(55.5)
Half	20	(44.4)
Household size		
1	16	(35.5)
2	8	(17.7)
3	6	(13.3)
4	5	(11.1)
5	6	(13.3)
6	3	(6.66)
7	0	(0)
8	1	(2.22)
Children (<18 y)		
Household with children	20	(44.4)
Household without children	25	(55.5)
Seniors (>65 y)		
Household with seniors	21	(46.6)
Household without seniors	24	(53.3)

Table 2: SNAP Participants' Confidence in Preparing Fresh Fruits & Vegetables

	n	(%)
Pre-survey		
Confident	37	(82.2)
A Little Confident	8	(17.8)
Not Confident	0	(0.0)
Post-survey		
Confident	39	(86.7)
A Little Confident	4	(8.9)
Not Confident	2	(4.4)

Table 3: SNAP Participants' Ease of Access in Obtaining Fresh Fruits & Vegetables

	n	(%)
Pre-survey		
Easy	16	(35.6)
Somewhat Difficult	20	(44.4)
Very Difficult	7	(15.6)
Unanswered	2	(4.4)
Post-survey		
Easy	24	(53.3)
Somewhat Difficult	20	(44.4)
Very Difficult	0	(0.0)
Unanswered	1	(2.2)

Table 4: Number of Times SNAP Participants Attended the FBD-CSA Program

Number of Share Pick-ups Attended	n	(%)
0	41	(16.5)
1	74	(29.8)
2	28	(11.3)
3	15	(6.0)
4	12	(4.8)
5	4	(1.6)
6	2	(0.8)
7	4	(1.6)
8	3	(1.2)
9	7	(2.8)
10	4	(1.6)
11	5	(2.0)
12	5	(2.0)
13	4	(1.6)
14	6	(2.4)
15	7	(2.8)
16	9	(3.6)
17	10	(4.0)
18	9	(3.6)
Total Sample	249	(100.0)

Table 5: Fruit and Vegetable Servings from the Pre-Survey of SNAP Participants Who Attended the FBD-CSA Program & Participants Who Did Not Attend

Fruit & Vegetable Servings	Attend FBD-CSA Program	
	Yes	No
	n % within attendance	n % within attendance
0	5 (5.9)	2 (4.8)
1	20 (23.8)	7 (17.1)
2	25 (29.8)	14 (34.2)
3	15 (17.9)	9 (22.0)
4	14 (16.6)	7 (17.1)
5	1 (1.2)	2 (4.8)
5+	4 (4.8)	0 (0.0)
Total	84 (100.0)	41 (100.0)

Fisher's Exact Test: p = 0.6589

Table 6: Fruit and Vegetable Servings from the Pre-Survey of SNAP Participants Who Completed the Post-Survey & Participants Who Did Not Complete A Post-Survey

Fruit & Vegetable Servings	Post-Survey Completion	
	Yes	No
	n % within completion	n % within completion
0	4 (8.9)	1 (2.6)
1	11 (24.4)	9 (23.1)
2	14 (31.1)	11 (28.2)
3	7 (15.6)	8 (20.5)
4	6 (13.3)	8 (20.5)
5	0 (0.0)	1 (2.6)
5+	3 (6.7)	1 (2.6)
Total	45 (100.0)	39 (100.1)

Fisher's Exact Test: p = 0.7028

Table 7: SNAP Participants Pre-Survey & Post-Survey Fruit and Vegetable Servings

	Post-Survey Servings						Total
	1	2	3	4	5	5+	
Pre-Survey Servings	n % within pre-survey	n % within pre-survey	n % within pre-survey	n % within pre-survey	n % within pre-survey	n % within pre-survey	
0	0 (0.0)	0 (0.0)	2 (50.0)	2 (50.0)	0 (0.0)	0 (0.0)	4 (100.0)
1	3 (27.3)	4 (36.3)	3 (27.3)	1 (9.1)	0 (0.0)	0 (0.0)	11 (100.0)
2	1 (7.1)	6 (42.9)	5 (35.7)	0 (0.0)	1 (7.1)	1 (7.1)	14 (99.9)
3	0 (0.0)	1 (14.3)	3 (42.8)	1 (14.3)	1 (14.3)	1 (14.3)	7 (100.0)
4	1 (16.7)	1 (16.7)	2 (33.3)	1 (16.7)	0 (0.0)	1 (16.7)	6 (100.1)
5+	0 (0.0)	1 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	2 (66.7)	3 (100.0)
Total	5	13	15	5	2	5	45

Fisher's Exact Test: p = 0.3213

Table 8: Frequency of Fruit and Vegetable Servings from the Pre-Survey & the Post-Survey

	n	(%)
Pre-Survey		
0	4	(8.9)
1	11	(24.4)
2	14	(31.1)
3	7	(15.6)
4	6	(13.3)
5	0	(0.0)
5+	3	(6.7)
Median Number of Servings: 2		
Post-Survey		
0	0	(0.0)
1	5	(11.1)
2	13	(28.9)
3	15	(33.3)
4	5	(11.1)
5	2	(4.5)
5+	5	(11.1)
Median Number of Servings: 3		
Wilcoxon Rank Sum Test: p = 0.1062		

Table 9: Post-Survey Fruit and Vegetable Servings of SNAP Participants By Race

	Race			
	African American	Hispanic	White	Unanswered
Fruit & Vegetable Servings	n % within Race	n % within Race	n % within Race	n % within Race
1	2 (8.7)	2 (20.0)	1 (9.1)	0 (0.0)
2	7 (30.4)	1 (10.0)	4 (36.4)	0 (0.0)
3	9 (39.1)	4 (40.0)	2 (18.2)	1 (100.0)
4	3 (13.0)	1 (10.0)	1 (9.1)	0 (0.0)
5	1 (4.4)	1 (10.0)	0 (0.0)	0 (0.0)
5+	1 (4.4)	1 (10.0)	3 (27.3)	0 (0.0)
Total	23 (100.0)	10 (100.0)	11 (100.1)	1 (100.0)

Fisher's Exact Test: $p = 0.7056$

Table 10: Post-Survey of Fruit and Vegetable Servings of SNAP Participants By Household Composition

Fruit & Vegetable Servings	Children in Household	
	Yes	No
	n % within children	n % within children
1	3 (12.5)	2 (9.5)
2	7 (29.2)	5 (23.8)
3	7 (29.2)	9 (42.9)
4	3 (12.5)	2 (9.5)
5	0 (0.0)	2 (9.5)
5+	4 (16.7)	1 (4.8)
Total	24 (100.1)	21 (100.0)

Fisher's Exact Test: p = 0.5584

Table 11: Project Goals & Performance Objectives

Project Goal	Intended Outcomes	Outcome
1. To provide low-income communities with a reliable supply of fresh, local, affordable, and sustainable produce.	100-200 low-income families will be provided with fresh produce over an 18-week period.	The FBD-CSA program reached 208 families over an 18-week period. The share purchased provided low-income families with fresh, local, affordable produce.
2. To introduce low-income communities to local farmers through incentivized access to a farmers' market in their community.	Participants and farmers will express satisfaction with the program.	This goal was achieved through the FBD-CSA program. The share pick-ups were located at the Wilmington Farmers' Market at Cool Spring Park. This provided access to a local farmers' market in their community. Some participants and farmers expressed satisfaction with the program.
3. To support the local agricultural economy.		This goal was achieved through the market tokens the participants used at other vendors' stands at the Wilmington Farmers' Market at Cool Spring Park. Approximately \$10,000 worth of market tokens was distributed and \$9,600 worth of market tokens was redeemed.
Performance Objectives	Intended Outcomes	Outcome
1. To support the expansion and sustainability of a designated farmers' market.	Farmers at the designated farmers' market/CSA distribution site will accept the token incentive plan and benefit from the additional customer base.	The FBD-CSA program expanded the Wilmington Farmers' Market at Cool Spring Park by bringing more customers to the market. The market tokens supported the expansion of the market by increasing sales from

		SNAP participants.
2. To provide food and nutrition education on the safe handling and preparation of fresh produce as well as the health benefits.	Nine nutrition education events will be implemented at the site of the FBD-CSA share distributions.	This objective was reached through the nine food demonstrations by the FBD nutrition staff and culinary school.
3. To introduce the use of EBT machines into farmers' markets.	An EBT machine will be established at one farmers' market. \$18,000 of EBT benefits will be recovered.	The FBD staff used an EBT machine at the farmers' market for SNAP participants to purchase their share. \$2,942.00 was recovered in EBT benefits.
4. To establish a unique revolving loan fund that allows low-income individuals to participate in FBD-CSA program without the upfront cost.	The revolving loan program will operate in the black by the end of the 3-year grant period through EBT client payback and generating community support for the program.	The revolving loan fund was not established after the first year of the FBD-CSA program due to the 100% reimbursement rate of the market tokens.
5. To collaborate with local farmers to configure a defined number of shares with smaller poundage available at a lower price.	Two local farmers will have a minimum increase in revenues of \$46,000 based on the 117 low-income shares each year and the opportunity for an additional \$20,000 from the additional 50 shares to FBD donors.	Two local farmers (SIW Vegetables and Highland Orchards) provided a total of 117 smaller poundage shares available at a lower price. The farmers received a total of \$48,000. The farmers made \$6,800 from 25 FBD donor shares.
6. To increase avenues for donor opportunities to support an FBD-CSA share.	Fifty additional donors will be identified to purchase shares independent from the FBD in support of the FBD-CSA program.	Donors had a new way to support the FBD by purchasing a share. A \$100 went to the FBD when a donor share was purchased. A total of 25 donor shares were purchased.
7. To increase farmer interest and		This was unable to be determined because it was

willingness to accept EBT transactions.		not asked in the key informant survey or farmers questionnaire.
8. To create an outreach campaign marketing the benefits of CSA programs to the low-income populations.		The outreach campaign used flyers and brochures to explain the benefits of joining the FBD-CSA program. Volunteers from the Lutheran Community Services and West End Neighborhood House assisted the FBD with recruitment.
9. To involve the BSV youth workers who have aged out of foster care as an employment training opportunity through the operation of the FBD-CSA program.	Two BSV youth will participate in the program gaining valuable employment training.	One BSV youth worker was employed by the FBD. The 24-year old female BSV worker was older than originally intended. This employee was responsible for bagging the produce for the individual shares and distributing the shares at pick-up.

FIGURE

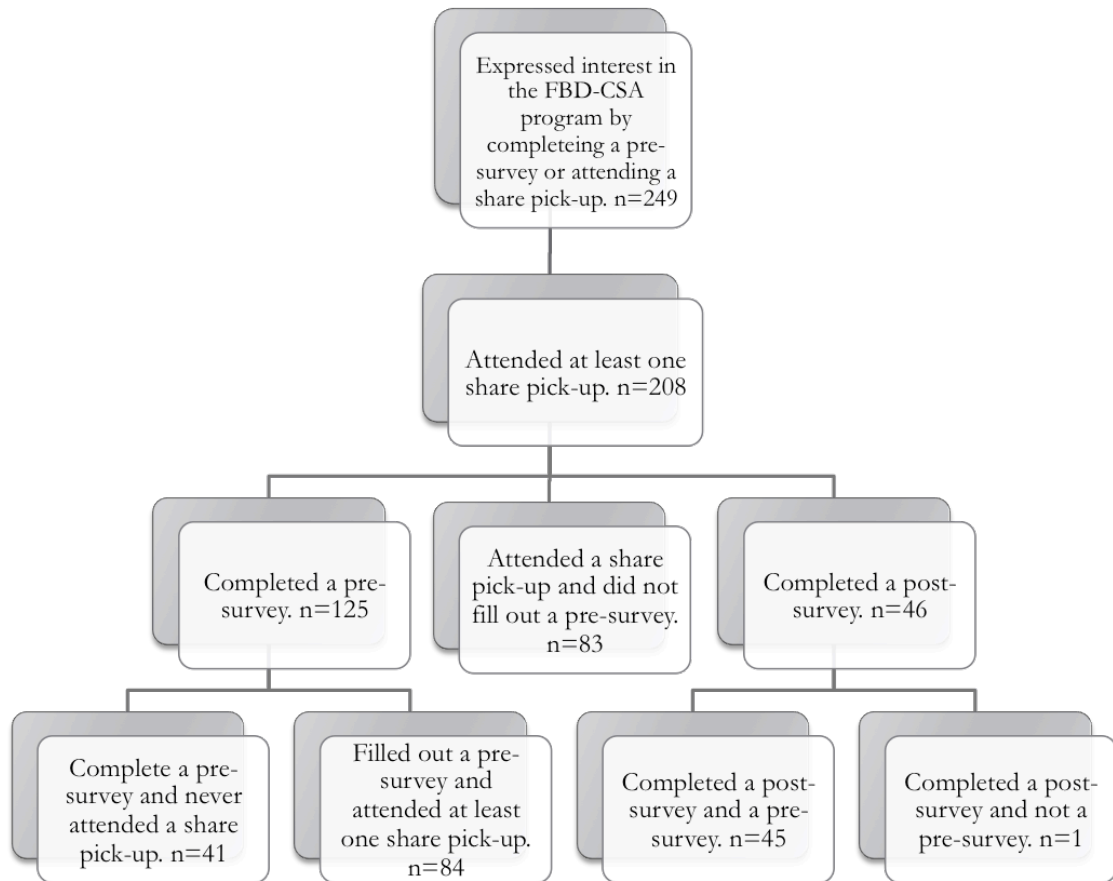


Figure 1: The number of SNAP participants who completed different steps of the survey process of the FBD-CSA program.

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Appendix A
PRE- SURVEY

Please fill out the brief survey below and return it to the Food Bank of Delaware using the self-addressed stamped envelope included. Your answers will help us better understand your needs, develop recipes, and plan activities. It will not affect your participation in the program. If you'd rather fill this out over the phone or have any questions, please call Barbara @ 302-292-1305 x204. If you are no longer interested, please circle NO and I'll remove you from my list.

1. Name: _____ Phone: _____

2. Are you still interested in participating in the CSA program? (*Circle one*):
YES NO

3. I would like a (*Circle one*): Full Share (\$10/wk) Half Share (\$5/wk)

4. How many people live in your home? _____

5. How many children under 18 live in your home? _____

6. How many adults over 65 live in your home? _____

7. How easy is it for you to get fresh fruits & vegetables into your home? (*Circle one*)

Easy

Somewhat difficult

Very difficult

If somewhat or very difficult, please explain why: (*Example: too expensive, not sold in local stores, etc...*)

8. One serving size of fruits or vegetables is about the size of your fist. How many servings per day do you and those in your household usually eat?

9. How many times did you go to a farmer's market last summer if any?

10. How confident do you feel in preparing fruits and vegetables? (*Circle one*)

Confident

A little confident

Not confident

11. With what ethnic group or race do you identify? (*Example: White/Black (African America.)/Asian/Hispanic/Latino*)

-
- 12. Since this is our first year, we are looking for a few “select members” to share their opinions about the food, recipes, and overall market experience each week. It would only involve answering a short survey. Your opinions would help us improve the program. For your time, at the end of the market season you would receive a thank-you gift. Would you be interested in being a “select member”? (*Circle one*) YES NO**

Thank you for your contribution!

Appendix B
POST-SURVEY

Please fill out the brief survey below and return it to the Food Bank of Delaware using the self-addressed stamped envelope included. Your answers will help us better understand the Food Bank of Delaware Community Supported Agriculture Program. If you'd rather fill this out over the phone or have any questions, please call Colleen Abbott at 410-562-1558. **Please return by November 1, 2013.**

Name: _____ **Phone:** _____

1. Did you receive a (*Circle one*): Full Share (\$10/wk) Half Share (\$5/wk)

2. How many people live in your home? _____

3. How many children under 18 live in your home? _____

4. How many adults over 65 live in your home? _____

5. How easy is it for you to get fresh fruits & vegetables into your home? (*Circle one*)

Easy

Somewhat difficult

Very difficult

If somewhat or very difficult, please explain why: (*Example: too expensive, not sold in local stores, etc...*)

6. One serving size of fruits or vegetables is about the size of your fist. How many servings per day do you and those in your household usually eat?

7. How many times did you go to a farmer's market this summer? _____

8. How confident do you feel in preparing fruits and vegetables? (*Circle one*)

Confident

A little confident

Not confident

9. With what ethnic group or race do you identify? (*Example: White/Black (African America.)/Asian/Hispanic/Latino*)

Thank you for your contribution!

Appendix C
FOCUS GROUP CONSENT FORM

University of Delaware Informed Consent Form

Title of Project: The Evaluation of the Food Bank of Delaware Community Supported Agriculture Program

Principal Investigator (s): Colleen Abbott

You are being asked to participate in a research study. Please read the information below and ask the research team questions about anything we have not made clear before you decide whether to participate. Your participation is voluntary and you can refuse to participate or withdraw at anytime without penalty or loss of benefits to which you are otherwise entitled. If you decide to participate, by signing your name, you are providing your consent.

The purpose of this focus group is to obtain information on the Food Bank of Delaware Community Supported Agriculture (FBD-CSA) program.

You are being asked to take part in this focus group because you participated in the FBD-CSA program. You were able to participate in the FBD-CSA program because you live in the Wilmington, DE area and receive SNAP benefits (food stamps).

This focus group will ask your personal opinion about the program. (Ex: Likes, Dislikes) Your honest answers will help us better determine ways to improve the FBD-CSA program in the future.

Ten participants who participated in the FBD-CSA program consistently will be randomly selected to participate in a focus group. There are no known risks and benefits by participating in this focus group.

Information shared during the focus group should be treated as confidential information. However, the PI cannot guarantee how others will treat the information they hear in the focus group. Members of the group will hear your responses and know you have participated in the focus group.

The focus group will be conducted in-person and audiotaped. The audiotape will be listened to in private and destroyed once the audiotape has been transcribed. The focus groups will be held on Oct. 24, 2013 at 4 p.m. at the West End Neighborhood House.

Those who participate in the focus group will receive a \$10.00 gift card at the end of the session.

WHO SHOULD YOU CALL IF YOU HAVE QUESTIONS OR CONCERNS?

If you have any questions about this study, please contact the Principal Investigator, Colleen Abbott at 410-562-1558.

If you have any questions or concerns about your rights as a research participant, you may contact the University of Delaware Institutional Review Board at 302-831-2137.

Your signature below indicates that you are agreeing to take part in this research study. You have been informed about the study's purpose, procedures, possible risks and benefits. You have been given the opportunity to ask questions about the research and those questions have been answered. You will be given a copy of this consent form to keep.

By signing this consent form, you indicate that you voluntarily agree to participate in this study.

Signature of Participant

Date

Printed Name of Participant

Appendix D
FOCUS GROUP SCRIPT

(RECORD START TIME)

(NOTE NUMBER OF MALES, FEMALES; NAME OF SITE; BE SURE PARTICIPANTS ARE SEATED IN A CIRCLE).

Hello, my name is Colleen. I am a student at the University of Delaware. This is my assistant Kyle. Feel free to enjoy the refreshments. Thank you for taking the time to meet today and for being a part of the Food Bank of Delaware Community Supported Agriculture Program. This focus group will take approximately one hour. Your participation in the program and our meeting today is important to making our program a success. I hope that you will take this opportunity to openly share your feelings about the program, what you like and dislike, so that we can make the program better for all of you. We will be audiotaping this session and taking notes just to help us remember what you've told us today. Are there any questions?

I'd like to begin by asking everyone to say their first name and how many share pick-ups you attended.

1. In what ways do you feel the program has benefitted you and/or your household?
2. How did you feel about the share of produce you received each week?
3. How frequently, if any, did the produce go to waste?
4. What did you think about the market tokens?

5. What did you think about the nutrition information, recipes, and food demonstrations?
6. What did you think about the weekly newsletters?
7. What did you think about your experience getting to and from the market?
8. What changes would make the program better for you?
9. Would you be interested in participating in the program again?
10. If they changed the program next year to only consist of market tokens, would you still want to participate? For example: there wouldn't be any share pick-ups. You would spend \$10 of your SNAP benefits at a vendors stand at Cool Spring Farmers' Market and receive \$5 in market tokens to spend elsewhere. Would you want to participate in that program?
11. Is there anything else you would like to add about your overall experience at the market?

Thank you so much for taking the time to talk to us today. As a token of our appreciation here is a \$10 gift card to Kmart.

Appendix E
KEY INFORMANT SURVEY

Please fill out the brief survey below and return it to the Food Bank of Delaware using the self-addressed stamped envelope included. Your answers will help us better understand the Food Bank of Delaware Community Supported Agriculture (FBD-CSA) Program. If you'd rather fill this out over the phone or have any questions, please call Colleen Abbott at 410-562-1558. **Please return by November 1, 2013.**

1. What is your role(s) and the role(s) of your organization in the FBD-CSA program?

2. What benefits has the FBD-CSA program offered to your organization and the individuals associated with your organization?

3. From your perspective, how has the FBD-CSA program benefitted the households purchasing the shares of produce?

4. From your perspective, how has the FBD-CSA program benefitted the community?

5. What were some of the concerns your organization presented during the development of the FBD-CSA program? How were these concerns addressed?

6. What were some of the problems that arose during the implementation of the FBD-CSA program? How were these problems handled?

7. Are there ways that the currently involved organizations or additional outside resources could strengthen the program?

8. Do you see the program as being on track to accomplish the goals and objectives?
What changes would you suggest for the second year of the program?

Appendix F
FARMER QUESTIONNAIRE

Thank you for providing the Food Bank of Delaware Community Supported Agriculture (FBD-CSA) Program with the produce. Please fill out the brief survey below and return it to the Food Bank of Delaware using the self-addressed stamped envelope included. Your answers will help us better understand the Food Bank of Delaware Community Supported Agriculture Program. It will not affect your participation in the program. If you'd rather fill this out over the phone or have any questions, please call Colleen Abbott at 410-562-1558. **Please return by November 1, 2013.**

Farm:

1. What did you like about providing produce for the FBD-CSA program?
2. What did you **dislike** about providing produce for the FBD-CSA program?
3. What benefits did the FBD-CSA program offer to your farm?
4. What challenges did the FBD-CSA program bring about to your farm?
5. What recommendations would you make for the FBD-CSA program?
6. Do you want to participate in the FBD-CSA program in the future?

Appendix G
POST CARD

Earlier this year you expressed interest in the Food Bank of Delaware Community Supported Agriculture Program by completing a pre-survey. However, you never attended to pick-up a share of fruits and vegetables.

For evaluation purposes we would like to know why you never attended the Food Bank of Delaware Community Supported Agriculture Program. Please fill out the brief survey below and return it to the Food Bank of Delaware using the self-addressed stamped envelope included. **Please return by November 10, 2013.**

Please Select One:

☐ Too time consuming

☐ Too expensive

☐ Lack of transportation

☐ Other _____

Appendix H
DROPOUT POST CARD

Earlier this year you expressed interest in the Food Bank of Delaware Community Supported Agriculture Program by participating in the program. However, you did not stay with the program through out the entire summer.

For evaluation purposes we would like to know why you dropped out of the Food Bank of Delaware Community Supported Agriculture Program. Please fill out the brief survey below and return it to the Food Bank of Delaware using the self-addressed stamped envelope included. **Please return by November 10, 2013.**

Please Select One:

☐ Too time consuming

☐ Too expensive

☐ Lack of transportation

☐ Unhappy with produce selection

☐ Other _____

Appendix I
RECRUITMENT BROCHURE

Fresh & Local

Thank you to our partners:

United States Department of Agriculture

Delaware Department of Agriculture

University of Delaware
Office of Service Learning

West End Neighborhood House

Cool Springs Farmers' Market

Lutheran Community Services

Highland Orchards

SIW Vegetables



CSA Program Coordinator

Barbara Brkovich
14 Garfield Way
Newark, DE 19713
(302) 292-1305 ext 204
bbrkovich@fbd.org

www.fbd.org

Community Supported Agriculture



Everyone can participate and eat fresh, locally-grown produce!

The Food Bank of Delaware has partnered with local growers to provide SNAP recipients and members of the general public with the opportunity to participate in a local CSA!

What is the CSA Program (SNAP recipients)?

Community Supported Agriculture (CSA) has become a popular way for consumers to buy local, seasonal food. Traditionally, CSA members purchase their produce during the winter and collected their shares weekly in the summer. The Food Bank CSA program allows you to pay for your share weekly using your EBT card.



By participating in the CSA program you become a community shareholder of a local produce farm. Shares are picked up

weekly at the Cool Springs Farmers' Market. The contents of your package will vary from week to week depending on what is in season. In addition to receiving farm fresh produce, shareholders also receive tokens to be used around the market to purchase SNAP-approved items such as artisan bread, fresh eggs, local honey, homemade pasta and much more.

How does it work?

Joining is a SNAP!

- Contact the CSA Coordinator and reserve your share!
- A \$10 deposit reserves your place in the program and goes toward your first share.
- Simply pick up your produce every week at the Cool Springs Farmers' Market (Thursday 4-7pm)
- Use your EBT card to buy your share for the next week (\$10/week) for 18 weeks
- Half shares are available for \$5/week.

Shareholder Benefits:

- Each week you will receive a full share of seasonal fruits and vegetables!
- Receive a huge variety of produce! At least 8 different items per week!
- When you receive your share you will also get tokens to purchase other items at the Market!
- A full share is enough to feed a family of four for a week!
- Weekly recipes and cooking demonstrations!
- Free welcome package!
- Market entertainment and family activities
- TRIPLE your benefit!! Each full share is a \$22 value PLUS you will receive \$10 in market tokens!



I am not eligible for SNAP benefits, but still want to participate! Can I?

- Yes, you simply reserve your share as you would a normal CSA.
- Sponsor Shares are \$500.00 for approximately 20 weeks
- A portion of your fee is a tax-deductible donation to the Food Bank (\$100)
- You receive a full share of produce each week.
- Shares are picked up weekly at the Cool Springs Farmers' Market.



WHERE DOES THE FOOD COME FROM?

Highland Orchards in Wilmington DE and SIW Vegetables in Chadds Ford PA

WHAT DOES MY MEMBERSHIP GIVE ME?

- High quality, nutrient-dense food that is locally grown and sustainable.
- A huge variety of seasonal produce (at least 8 different vegetables/week).
- Recipe ideas for the food you receive.
- A direct connection with the farm and farmers growing your food.
- Knowledge that your sponsorship provides enough fresh produce for a family of four each week.

www.fbd.org

14 Garfield Way
Newark, DE 19713
(302) 292-1305 ext 204

Appendix J
IRB Approval



RESEARCH OFFICE

210 HULLIHEN HALL
UNIVERSITY OF DELAWARE
NEWARK, DELAWARE 19716-1551
Ph: 302/831-2136
Fax: 302/831-2828

DATE: September 23, 2013

TO: Colleen Abbott
FROM: University of Delaware IRB

STUDY TITLE: [468026-2] Evaluation of the Food Bank of Delaware Community Supported Agriculture Program

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED
APPROVAL DATE: September 23, 2013
EXPIRATION DATE: September 22, 2014
REVIEW TYPE: Expedited Review

REVIEW CATEGORY: Expedited review category # 7

Thank you for your submission of Amendment/Modification materials for this research study. The University of Delaware IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.

If you have any questions, please contact Nicole Farnese-McFarlane at (302) 831-1119 or nicolefm@udel.edu. Please include your study title and reference number in all correspondence with this office.