Growing, Growing, Gone:

Identifying Alternative Markets for Surplus and Seconds Produce to Serve Low-Income Consumers in Saratoga County

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ABSTRACT

Food waste and food rescue have gained considerable attention in recent years, alongside issues related to low food security. However, very little data currently exists on the issue of farm-level food waste or surplus crops. The purpose of this qualitative research is to find possibilities for increased economic resilience and equity among small-sized farms in the Capital Region and low-income consumers in Saratoga County by identifying new markets for surplus produce. To gather data related to farmers experience with surplus crops and interest in selling such crops, we conducted 11 semi-structured interviews, collected 16 survey responses, and analyzed data provided by Capital Roots. To gather data on low-income consumers in Saratoga County, we conducted 12 surveys and analyzed survey data collected by Capital Roots from 47 individuals. We found that food loss occurs on both the farm-level (11 farmers reported having unharvested produce ranging from 50 lbs to 2500 lbs) and post-market (6 of 7 farmers reported having unsold produce after farmers markets). Most farmers either donate their surplus, give it to friends and family, feed it to their livestock, or compost it, but expressed general interest in the idea of a program that helps them sell this surplus while also helping those in need. Data from individuals surveyed by Capital Roots and at the Soup Kitchen confirm the notion that low-income communities in Saratoga County facing low-food security have a need for fresh produce. Together, our findings indicate that regional producers are eager to reduce food losses and help those in need, but need additional services and financial support to carry out activities related to more effectively managing their surplus.

KEYWORDS: *Food security; Food sovereignty; Food Loss; Food Waste; Surplus; Seconds; Small Farms; Vegetable Production; Gleaning*

INTRODUCTION

In and around Saratoga County, New York, many farmers find themselves with a surplus of edible produce. At the same time, approximately 7.9% of Saratoga County residents experience low food security (Healthy Capital District Initiative, 2016). Farmers' surplus crops are often donated directly to emergency feeding programs - such as food pantries, soup kitchens, or shelters - or to emergency feeding distribution organizations, including food banks like the Regional Food Bank of Northeastern New York and the Franklin Community Center located in the City of Saratoga Springs. However, donations of surplus produce represent a loss of income for farmers who might already be experiencing financial insecurity; these farmers could benefit from the creation of new markets from their surplus and seconds produce.

Although emergency feeding programs address low food security to some degree, in reality, they provide only a fraction of the food access that someone living in poverty needs day in and day out; they often offer limited visitation times and rules related to how much food one may take. Despite the fact that nobody is turned away when in need (Calbone, personal communication, 2019), Food Banks do not embody the same stability as corner stores, grocery stores, and other more common sources of food. There is also often a feeling of social stigma when one relies on a food bank - many individuals would prefer to be self reliant in obtaining food for themselves and their families (Calbone, personal communication, 2019). Furthermore, one of the biggest challenges faced by individuals experiencing low food security is finding fresh produce at affordable prices (Calbone, personal communication, 2019). By identifying new markets for farmer surplus and seconds produce that serve low-income consumers in Saratoga County, equity and economic resilience in the regional food system could be increased for both low-income consumers and small-scale regional producers.

The purpose of this qualitative and quantitative research was to find possibilities for increased economic resilience and equity in the regional food system among small-sized farms in the Capital Region and low-income consumers in Saratoga County. This research worked to identify new markets for regional producers to sell their surplus produce to underserved neighborhoods, thereby increasing the purchasing of locally produced food and increasing rates of food security and feelings of personal agency in Saratoga County. We conclude this research with recommendations for the distribution of surplus produce from Saratoga County farms, funding opportunities, and innovative partnerships between NGOs, farmers, retailers, and food banks.

Throughout our semi-structured interviews with farmers we gauged their interest in participating in a distribution model to sell their surplus crops as well as there general interest in involving more community groups to assist in production or other services needed to reduce food loss. We came up with a proposal that aimed to connect farmer surplus with low-income, low-food secure communities by using Capital Roots, or a similar organization, as a middleman. Capital Roots has the capacity to address stakeholder concerns about the uptake of selling and distributing surplus produce to new markets that help communities facing food apartheids. During our interviews with farmers we introduced this scenario and they shared other concerns that arose from utilizing this type of model.

The following literature review provides an overview of the issue of low food security in the United States and Saratoga County, agriculture in the Capital Region and the problem of surplus, and existing programs and organizations in the region that work to address low food security and support regional producers.

LITERATURE REVIEW

Food Security

International organizations define the state of low food security through four thematic elements: food availability, food access, food utilization, and stability (FAO, 2006). Food availability refers to an adequate quantity of food (by way of domestic production or international procurement) (FAO, 2006). Access is defined as the ability to retrieve food based on structural barriers such as community norms, food utilization is the ability to achieve the optimal nutritional output of the food as well as sanitation and clean water, and stability means that access and availability to food is secure and occurs at all times (FAO, 2006). At the World Food Summit in 1996, the World Food Program (WFP) synthesized these elements and defined the state of being food secure as existing "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2006).

As this definition highlights, the issue of low food security is multidimensional, encompassing complex political, economic, and social factors. Therefore, achieving universal food security is not independent of other structures that coexist with the food system. As a result, language encompassing issues of food security is becoming far more perceptive to these complexities. One example is the usage of the term "food desert" - a label often given to communities experiencing low food security. However, the term "food apartheid" is increasingly used to describe such situations, placing emphasis upon the fact that this is a human-created issue with roots in social inequalities and systematic oppression (Lennon, Regan, & Penniman. 2018).

Food Security in United States

Although the United States is an industrialized and wealthy nation, lack of food security and low food access remain major challenges for many Americans. Between the years of 2014-2017, the U.S. had approximately 3.4 million people facing very low food security, which equates to about 11.8% of the population (FAO, 2018). These numbers are even higher when looking at the more general issue of low food access - the USDA Food Access Research Atlas estimated that 54.4 million people, equal to 17.7% of the U.S. population, live in census tracts that are both low-income and low access. These census tracts are defined as having low access if a significant number (at least 500 people) or share (at least 33%) of the population is greater than 10 miles in rural areas or 0.5 miles in urban areas from the nearest supermarket, supercenter, or large grocery store (2017a).

There are many measures and definitions of food access, but most take into account similar elements. These often include accessibility to healthy food sources - as measured by distance to a store or concentration of stores in an area - family income or vehicle availability, and neighborhood-level measures of resources, such as average income or availability of public transportation. The concept of food access highlights the important connection between low food security and poverty (Lennon, Regan, & Penniman, 2018). Understanding the interplay between obstacles that low-income communities disproportionately face in terms of accessing sufficient food is essential to understanding the complexities of low food security as a whole, and developing effective programs that take into account such complexities.

A growing number of people who reside in low-income communities have limited-to-no reliable means of regularly commuting to quality food sources. Public transportation options are limited, and in many cases, non-existent. These challenges are not exclusive to poor auto-

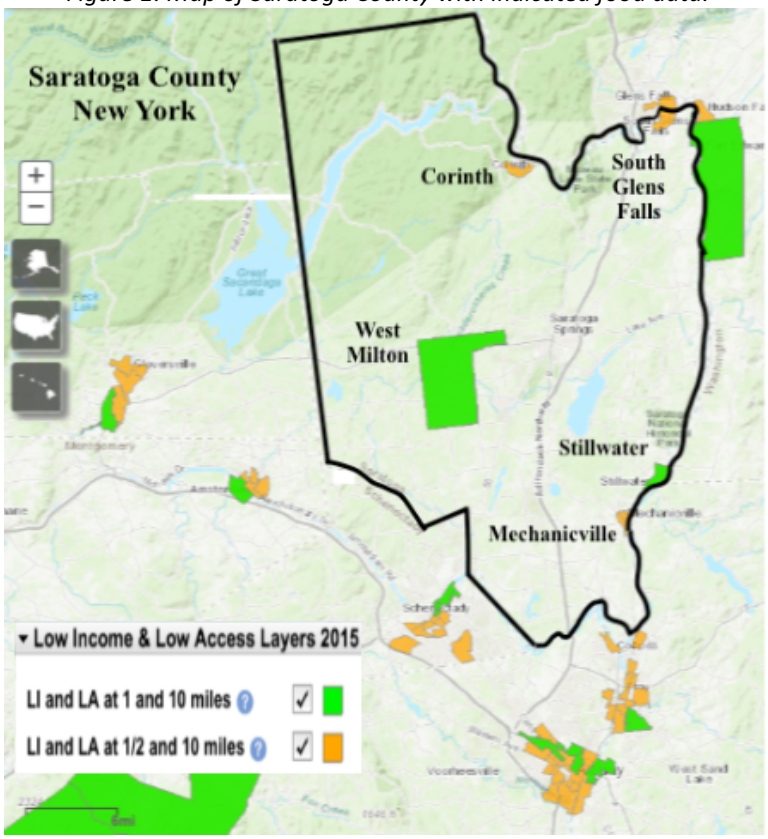
dependent communities in rural and suburban areas, but also apply to poor urban communities, where personal vehicles are not as common, particularly in urban communities of color (Spitzig, Myers, & Pera, 2017). Compounding this issue, farms and other local food retailers also often lack the means to distribute their produce in order to meet market demand in low-income communities (Lennon et. al., 2018). The lack of financial resources in low-income communities is also a major barrier to accessing fresh food. This is not only an issue stemming from lack of income, but also from lack of affordability; healthy local food is often expensive and not affordable for many individuals (Lennon et. al., 2018). This stands in opposition to the widespread belief that poor choices and lack of knowledge are to blame for the poor diets of low-income people. Instead, this research points to the intersectionality of these issues, and how addressing low food security and access involves the consideration of many other social issues and inequities.

Food Security in Saratoga County, New York

Saratoga County, New York is no exception for people struggling to find access to affordable and healthy food. Saratoga County is home to an estimated 229,869 people, nearly 8% of whom experience low food security and 6.6% in poverty (United States Census Bureau, 2017). According to the USDA's 2017 Food Research Atlas previously mentioned, these pockets of poverty are primarily located in rural areas that are both low income and have limited access to healthy food sources. Figure 1 shows a map of census tracts within Saratoga County that have low access to healthy food sources. These primarily rural areas are all on the outskirts of Saratoga Springs and include West Milton, Corinth, South Glens Falls, Stillwater, and Mechanicville. Given that low access is defined differently than food insecurity, it is possible

that the number of people struggling to find access to healthy, affordable food in Saratoga County is even greater than 8% if looking more loosely at the idea of food access.

Figure 1: Map of Saratoga County with indicated food data.



Agriculture in the Capital Region, NY

This section provides an overview of small-scale agriculture production in the Capital Region and how the issue of farm-level food waste relates to making healthy, affordable food accessible to all in a way that also supports regional producers. We use the term "surplus" throughout our paper to refer to edible food that is "lost" or "wasted" from being left on the field or unsold at market. The term "seconds" refers to produce items that farmers often feel aren't visually appealing enough to put on the market. Seconds produce is a major contributor to farm-level food waste.

Small Farms

The USDA defines a small farm as having gross sales of less than $250,000 in annual income. In 2017, out of the approximately 36,000 farms in New York State, 32,700 of them were classified as small farms. New York State's average farm is smaller than 200 acres, or about half the national average. New York's Capital District is home to a large amount of agricultural land, with $351.2 million in sales and a total of about 4,133 farms, equivalent to about 698,680 acres in 2007 (see Appendix A for map of agricultural land in the Capital District). Washington County is the region's number one agricultural producer (DiNapoli, Bleiwas, 2010).

Despite the large number of farms in the US, farming is difficult work and many farmers are struggling financially. Less than 20% of farms generate more than $100,000 in farm income and many farmers must supplement their incomes with side jobs (DiNapoli, Bleiwas, 2010). 97% of U.S. farms are family-owned and vulnerable to economic forces, and 57% of America's farmers are 55 or older and likely to retire soon (American Farmland Trust, 20119). This information speaks to the need for better financial support and availability of resources for farmers.

Farm-Level Food Waste

Very little data exists on the issue of surplus produce. In one of only a few attempts to quantify farm-level food losses in the U.S., the FAO estimates that approximately 42% of the general food supply in North America and Oceania goes to waste, with about 33% of waste that occurring at the farm level (FAO 2011; Neff, R. A., Dean, E. K., Spiker, M. L., & Snow, T., 2018). No state-level government data or USDA data on the issue of farm-level food waste currently exists. Additionally, only a handful of studies have focused on the issue of food losses

on farms, the forces behind it and methods for managing it. Based on the countrywide estimate, however, it is clear that an unknown but considerable amount of New York farmers' edible produce is lost at the farm level.

Surplus produce represents a lost income opportunity for food producers, waste of growing inputs, and loss of healthy food for consumers when not donated. Even when farmers simply turn under or compost excess crops to nourish the soil, the process that went into producing that compost involved unnecessarily high amounts of inputs of natural resources, energy, and money and time. Compost can be produced with lower-input methods and inedible organic material instead.

According to a 2016 survey of 58 vegetable and berry farmers representing 13 counties in Vermont conducted by Salvation Farms, an average 14.3 million pounds (based on farmer estimates) of wholesome vegetables and berries are lost on the state's farms each year. "Lost food" refers to edible food that is either *not* picked, or *is* picked and goes unsold or isn't donated. Of these 14.3 million pounds identified, the average vegetable farmer considers 32% of what is left unpicked edible, while 68% is picked but neither sold nor donated (Neff, R. et al, 2018). Reasons for why farmers do not pick this edible food were attributed to either blemished produce, lack of assurance for the farmer in their ability to sell the produce, and insufficient or unaffordable labor. Reasons for not selling edible picked produce included an overall lack of demand for the item, competing harvest of the same item (oversaturation of the market), blemished produce, and a lack of infrastructure necessary for produce storage.

Existing Initiatives

There are some existing initiatives for handling surplus and seconds produce by farmers and other groups, but the vast majority revolve around emergency feeding programs. The following section analyzes some of these efforts already in place.

Emergency Feeding Programs

As stated before, many farmers often donate their surplus crops to local emergency feeding programs. In 2016, New York's 10 Regional Food Banks received 13.2 million pounds of donated local food. This food was then donated to over 5,000 emergency food providers across the state (Cornell, 2018). Saratoga County has a number of emergency feeding programs, including the Soup Kitchen at the New England Presbyterian Church - a program sponsored by Saratoga's Economic Opportunity Council (EOC). While these programs have allowed for the environmental and economic benefits of reducing food waste while providing the social benefit of alleviating food insecurity, they do not offer much in the way of supporting the farmer nor do they offer the same stability for low-income individuals as do more common sources of food such as grocery stores.

There are a number government initiatives exist to economically incentivize donations to emergency food programs. For example, as of January 1st, 2018, New York State farmers have been eligible to receive refundable tax credit for qualified food donations made to any emergency food program. The credit amounts to 25% of the market value of the donated good, with a maximum annual benefit of $5,000. The process of donating product can be carried out in a number of ways. Farmers can donate directly to a food bank, which then delivers the product to food pantries or soup kitchens; donate directly to a local food pantry or soup kitchen; work with gleaning organizations to collect excess crops directly from the fields; and/or partner with a non-

profit (New York State Department of Taxation and Finance, 2018). While this program provides an extra source of income to farmers, thus incentivizing food donations, it might not match the economic potential of market-based solutions to addressing food insecurity and farmer surplus - solutions which are also more likely to build resiliency among those experiencing low food security.

Market-Based Initiatives

A number of initiatives and programs led by organizations in the Capital Region work to help connect farmers to local markets in communities with low access to healthy produce. Such initiatives offer an alternative to the traditional food assistance programs discussed above, and are often aimed at alleviating hunger in a way that also supports farmers financially, as well as work to address social inequalities that are at the root of the issue.

Capital Roots operates a non-profit-modeled food hub to supply its fresh-food-access programming, like the Veggie Mobile® produce market and their Healthy Stores program, which distributes produce to small retail stores, including convenience stores and bodegas. The Veggie Mobile® and the Produce Market at Capital Roots' headquarters - which is a part of the Healthy Stores program - accept food assistance benefits (SNAP/EBT, FMNP Checks, and WIC Fruit & Vegetable Checks), so customers not only have increased access to affordable produce in their neighborhoods, but they also have the ability to use their federal food assistance dollars on local, affordable produce. This in turn creates a new market for local farmers and captures dollars for the local economy from a new source. The produce sold by Capital Roots is sourced locally when possible from small farms in the Greater Capital Region. Capital Roots' programs aim to address healthy food access by making produce accessible for purchase to those most in need.

Another way in which farmers are being connected to local markets is through Community Supported Agriculture (CSA); a food production and distribution system that provides a direct connection between farmers and consumers. Members buy a share of the farm's production before each growing season and in return, they receive regular distributions of the farm's harvest throughout the season (United States Department of Agriculture, 2018). However, CSAs are generally used by more economically-resilient individuals, as they are often expensive, and one must pay for the service upfront.

Some farms, however, make their CSAs available to a variety of income levels. Soul Fire Farm is one of many farms in the area which offers a CSA program, and stands out in its commitment to putting an end to racism and social injustice in the food system. In addition to centralized group pick-up locations, Soul Fire's 4-month (June-November) CSA offers doorstep delivery for most neighborhoods in downtown Troy and for Albany's Mansion, South End, and Arbor Hill neighborhoods. Each share contains the choice of eggs or sprouts, plus 8-15 varieties of seasonal vegetables. Soul Fire accepts SNAP/EBT and offers monthly payments instead of requiring customers to pay full cost of the share up-front. It also offers sliding scale payment, ranging from $25-$50 per week depending on customers' self-reported financial resources. At both ends of the scale, the price is below that which one would find at a local natural foods store for the same items (Lennon et. al., 2018). In addition, Soul Fire Farm recently published a a guide, titled "Guide for Farmers Who Want to Supply Low-Income Communities While Maintaining Financial Sustainability," which offers strategies and insights - focusing primarily on CSAs and farmers' markets - to help small farm businesses who wish to support the needs of low-income communities (Lennon et. al., 2018).

METHODS

The following section details the methods of data collection employed for this study.

Population and Setting

This mixed-methods study focuses on several groups of stakeholders who are located within or serve Saratoga County, New York. Our research involved direct observation of various phenomena, including specific site visits. Data on farmers was gathered throughout the Capital Region, which includes the following counties: Albany, Greene, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Columbia, Montgomery, Fulton and Washington. Our research on consumers and potential market channels was collected directly within Saratoga County.

Research Questions

Our research was guided by the following questions:

1. To what extent could redirecting surplus produce from farmers in Saratoga County to retail outlets improve economic resiliency for farmers, while simultaneously improving food security for residents of Saratoga County?
    a. Which farmers have excess, and why?
    b. How are farms currently dealing with excess food?
2. What new market outlets, market levels, or ways of increasing item diversity within existing markets could help farmers to sell their excess food/produce?
3. What are the needs of communities in Saratoga that have limited access healthy, affordable sources of fresh produce? What are the best market types to meet these needs?

Survey Instrumentation and Analysis

I. *Farmers*

Two versions of a Qualtrics survey were sent via email, as well as postcards promoting the survey to a total of 45 farms within the Capital Region. Both surveys were designed to get a better sense of the primary market channels farms currently sell through, the scale of the issue of surplus, and the current practices on farms for managing surplus and seconds produce. The first version of the survey was sent to the 15 farms who did not partake in a previous Capital Roots roundtable discussion. The second version of the survey was sent to the 30 farmers who participated in the Capital Roots roundtable discussion. The surveys were separated so that farms who took part in Capital Roots' roundtable discussion - which included some questions regarding surplus - would not find our survey redundant.

II. *Consumers*

To get a better picture of where low-income consumers in the Capital Region currently obtain food, as well as their needs in regards to accessing affordable and healthy food, we analyzed data from Capital Roots and conducted surveys of our own. Capital Roots provided our research with data they collected from 47 consumer responses in the Capital Region to demonstrate popular food trends among low-income communities. On top of these 47 responses, we collected 12 surveys responses of the same design from customers at the New England Presperterian Soup Kitchen in downtown Saratoga Springs. Our survey questions were identical to Capital Root's surveys and were approved by the Saratoga County Economic Opportunity Council (EOC) who is in charge of running the Soup Kitchen. The surveys gathered information on a consumer's definitions of "good food," barriers they face in accessing good food, and their

purchasing outlets for obtaining good food. $5 gift cards to Stewart's Shops were given as an incentive for individuals to complete the survey.

Interview Instrumentation and Analysis

A cellular device was used to record all interviews conducted with our three groups of stakeholders, using the QuickVoicePro app. Once finished, interviews were personally transcribed. After transcriptions were completed, we used color-coding to track the patterns and themes that emerged from interviews, compiling quotes and responses into various categories to be quantified for graphs.

I. *Farmers*

Semi-structured interviews were conducted with 11 farmers (Table 1). Interviews followed a list of pre-established questions, but would typically flow into a conversation. In this way, all questions were answered, space was given to the farmers to speak about additional things they found important to mention. Farmers were identified by searching for local farms online and through contact lists provided by Capital Roots, and were then contacted via phone, email, or in person at the winter indoor Saratoga Farmers Market. Out of the 11 farmers interviewed, 9 did not participate in the Capital Root's roundtable discussion. Therefore, only 2 interviews needed their guiding questions to be altered as to not repeat questions already asked at the roundtable. Interviews were typically conducted onsite at farms with all group members present when possible, but would occasionally were conducted over the phone. There was no set interviewer, as all group members would ask questions and be involved in the conversation.

Table 1: List of interviewed farms, including their location and acreage.

Farm	Address	Land used for Production	Date Interviewed
The Alleged Farm	209 Cooke Hollow Rd, Valley Falls, NY 12185	10 acres	1 April
Cliff's Vegetables	563 Goode St. Ballston Spa, NY 12020	2 acres	20 February
Denison Farm	333 Buttermilk Falls Road – Schaghticoke, NY 12154	25 acres	3 March
Dutch Barn Farm	1311 Stone Arabia Rd Fort Plain, NY 13339	95 acres	4 April
Featherbed Lane Farm	35 Featherbed Ln. Ballston Spa, NY 12020	30 acres	24 February
Indian Ladder Farm	342 Altamont Rd, Altamont, NY 12009	120 acres	3 April
Old World Farm	160 Flike Rd, Stillwater, NY 12170	2 acres	19 March
O'Trembiak Farms	23 North Milton Rd, Saratoga Springs, NY 12866	2 acres	16 February
Pitney Meadows Community Farm	223 West Ave, Saratoga Springs, NY 12866	25x50 feet	25 February
Saratoga Apple – Orchard & Farm Stand	1174 RT 29 Schuylerville, NY 12871	40 acres	4 March
9 Miles East Farm	36 Goff Rd, P.O. Box 187, Schuylerville, NY 12871	29 acres	10 April

II. *Market Outlets*

We conducted a semi-structured interview at the Stewart's Shops headquarters in Ballston Spa with the Director of Marketing, Jeff Vigliotta, and Public Relations Specialist, Erica Komoroske, in order to determine the company's interest in offering local produce for sale in their stores. The interview was scheduled via email and was completed at the Stewart's corporate office in Ballston Spa, NY. Four predetermined questions helped to guide the interview and we followed-up with questions based on the responses of the participants.

We also conducted a semi-structured interview with Lauren Betz, a representative at Food For All, in order to gather information on one of the more creative ways the issue of food waste is currently being addressed. We were able to use information gathered from this interview to inform our recommendations.

III. *Consumers*

Semi-structured interviews were conducted with Community Health Coordinator, Amelia Gelnett of Comfort Food Community and Community Services Program Director/Latino Community Advocacy Program, Angelo Carbone of the Economic Opportunity Council of Saratoga Springs, two organizations working on issues related to food access. Both interviews were set-up through email and completed in person. Each interview was recorded on a cellular device and transcribed for coding.

Analysis of Existing Capital Roots Data

In addition to the interviews and surveys we conducted ourselves, we also analyzed data from Capital Roots' Regional Food Production Roundtable Discussion and Survey, as well as data from their food recovery initiative, Squash Hunger. For our analysis of the farmer roundtable, we narrowed the data down to 42 produce farms in the Capital Region. Two main categories of information were then gathered from this data. The first category provided context on farmers' current market presence, which markets they are looking to expand into, and obstacles to market expansion. The other category detailed what farmers do with their surplus. The Squash Hunger data was analyzed in order to add to our findings on volume of surplus produce, as well as our findings on low-income consumers needs and current purchasing behaviors.

Limitations

Limitations of our study include gaining access to wide a range of potential retail markets to interview, both in quantity and quality. Another limitation was the distance to farms. We were unable to complete more face-to-face interviews with farmers because of travel time, while we conducted several phone interviews, farmers are more likely to share information when speaking in person. Additionally, during winter months, food production dramatically decreases for the many farmers who do not have greenhouses or proper storage. Therefore, the winter months were less beneficial for learning about produce-related issues, as none was currently growing. Contacting farmers was also difficult due to their long work days and lack of accessibility to technology (internet, emailing, etc.). Lastly, our Qualtrics surveys were anonymous, and some questions were optional, so many farmers did not include the name of their farm, which would have been beneficial to learning average acreage of these farms, etc.

FINDINGS

Farmers

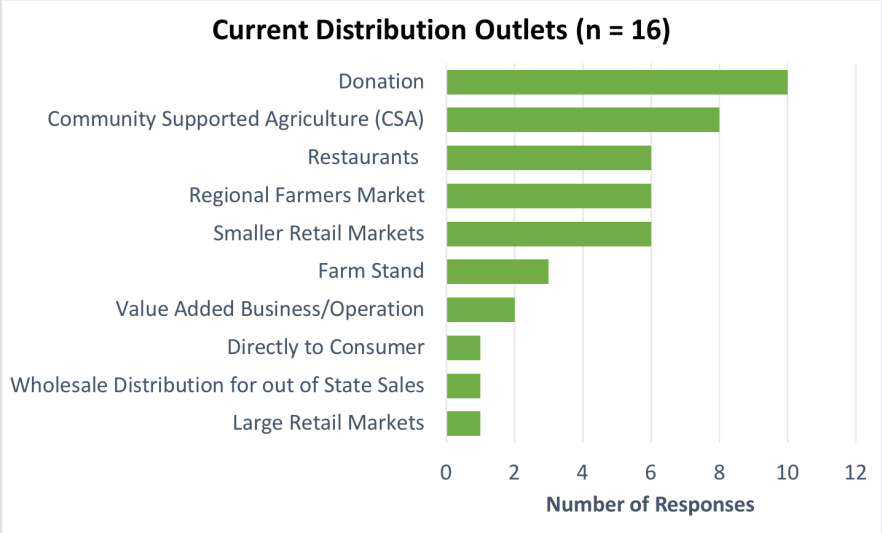
From the data we collected on regional farms through surveys, interviews, and analysis of Capital Roots data, we were able to get a better understanding of the local food economy - which includes current market channels - and the issue of surplus. Patterns and themes emerged regarding reasons for surplus, current methods for dealing with this surplus, and the level of interest in a program like the one we proposed.

Current Market Channels and Interest in Expansion

Of the farmers surveyed, most responded that they sell/distribute their produce through CSAs, regional farmers markets, restaurants, smaller retail markets (like bodegas and corner

stores), and through donation (Figure 2). Therefore, it is evident that donations represent a large proportion of where farmers sell and/or distribute their produce.

Figure 2: Current ways farmers distribute their produce.



In our analysis of Capital Roots' Farmer Roundtable data, we found that on-farm sales (farm stands, farm stores, pick your own farms) and farmers markets were the two most common market channels among those surveyed. Many farms also expressed interest in expanding their market channels to include more wholesale channels. This includes selling to distributors, directly to retail stores, food hubs, online markets, and/or restaurants. This finding is important in terms of measuring farmers openness to selling their produce to new markets that better serve low-income communities.

Markets for Seconds Produce

Additionally, several farmers responded that of these locations they sell to, "ugly"/seconds produce is not accepted, indicating that there is a need for a market for this produce. Many farmers also responded that they are "unsure" if these markets accept this produce, which means they likely do not distribute ugly/seconds produce to these locations

(Figure 3). Of the farmers that sell ugly/seconds produce, restaurants and direct sales to consumers represent the largest portion of sales, with only one response that indicated this produce is sold to wholesalers (Figure 4). Therefore, we can deduce that there is a need for a more mainstream market to sell this produce.

Figure 3: Retailers willing to buy "seconds produce" from farmers.

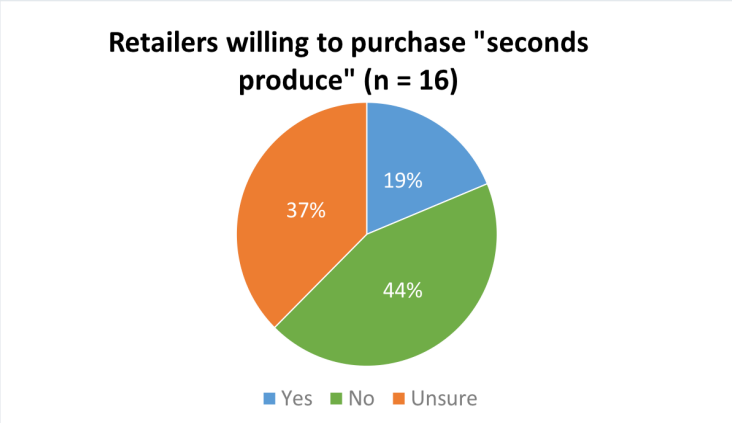
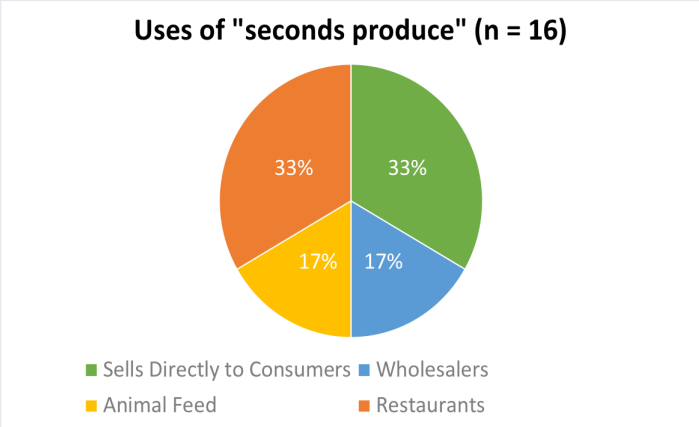


Figure 4: Various ways farmers use their "seconds produce".



Surplus Produce: Sources and Volume

In order to better understand the extent of farmer surplus among regional farmers from a quantitative perspective, as well as determine where surplus occurs along the supply chain, we analyzed data collected in 2018 by Capital Roots as a part of their Squash Hunger initiative. This

effort collected surplus at various locations, including from farmer's markets, farms, CSAs, donation bins in grocery stores, wholesalers, and through gleaning efforts. Total surplus collected through this program amounted to 88,802 pounds. We analyzed a few sources of surplus most relevant to our data (Table 2).

Table 2: Volume of unsold produce among regional producers donated to or collected by Capital Roots in 2018. Source: Capital Roots Squash Hunger Assessment (2018).

Pounds gleaned (pre-harvest)	17,035
Pounds from Farm Donation (post-harvest)	31,153
Pounds from Farmers Markets (post-farmers market)	9,241
Total Pounds from these sources:	57,428
Total pounds from all sources:	**88,802**

These farmers markets included the Albany, Delmar, Greenmarket (Schenectady), Troy, and Valley Falls farmers markets. The farms themselves were also all generally within an hour radius of Saratoga County, with a few outliers located an additional thirty minutes to one hour away.

Given this data collected by Capital Roots, it is clear that surplus produce from farmers in and around the Capital Region is a prevalent phenomenon, and is both plentiful and located near enough to justify searching for solutions to redistribute it amongst communities experiencing low food security in Saratoga County.

Data from our 16 survey responses and 11 semi-structured interviews added to our understanding of the extent of farmer surplus, and where this surplus comes from. 11 farmers responded to our survey that they do, in fact, leave a noticeable amount of produce unharvested on their farms for various reasons. Responses ranged from 50 lbs to 2500 lbs. In total, these 11

responses account for 8,161 lbs of produce left unharvested on farms: a massive source of surplus (Figure 5).

As previously indicated by the Squash Hunger data - which found 9,241 lbs of produce left over after farmers markets - 6 of the 7 farmers that responded that they sell at farmers markets mentioned having unsold produce afterwards. 5 farmers indicated the poundage of this leftover produce - ranging from 10 to 401 lbs - amounting to 842 lbs from only five farmers (Figure 6). These high numbers of food left unsold at farmers markets indicate that programs that collect surplus at farmers markets are an important resource.

Figure 5: Amount of produce farmers are unable to harvest annually.

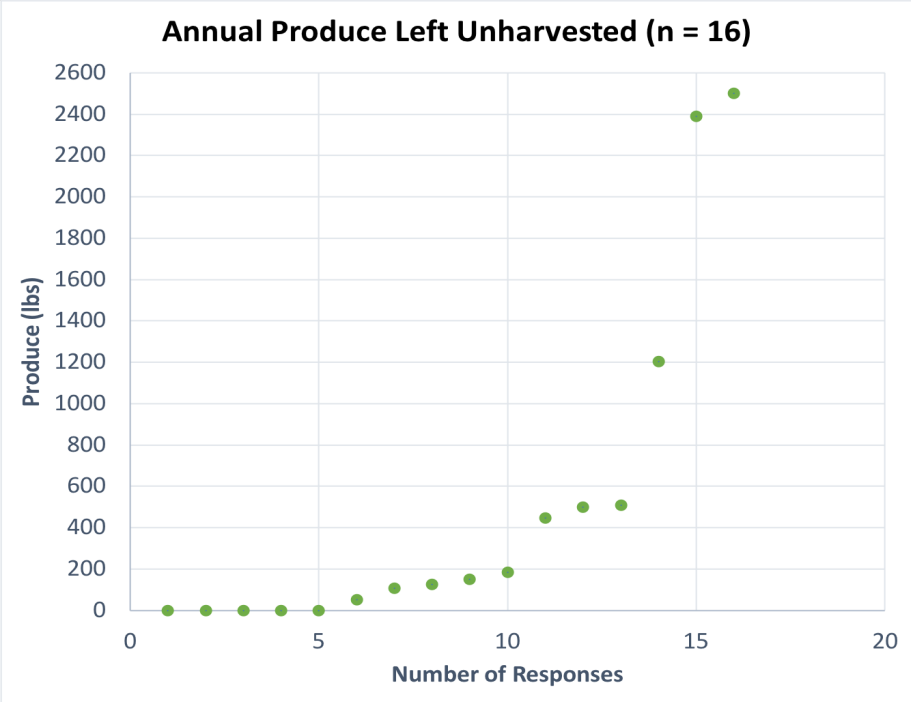
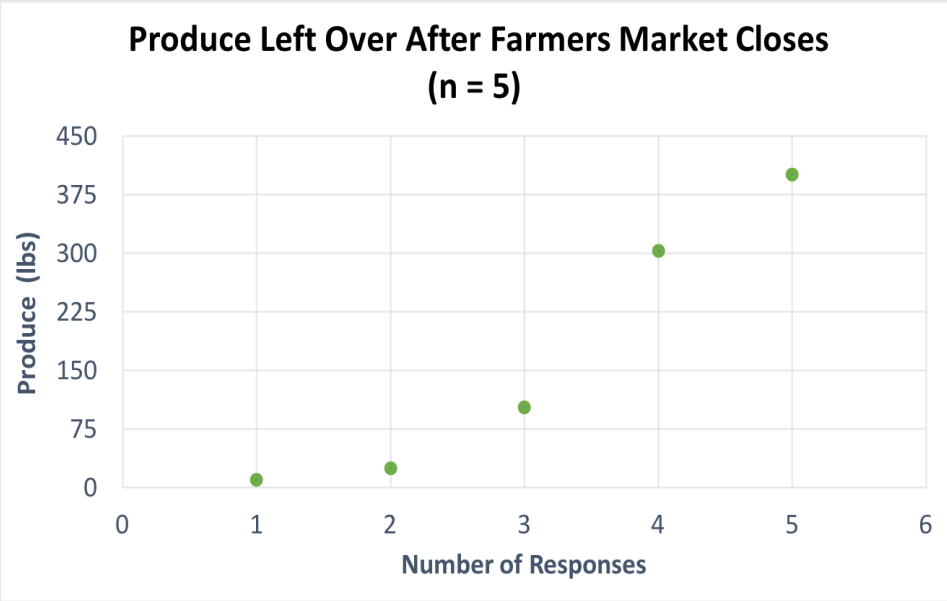


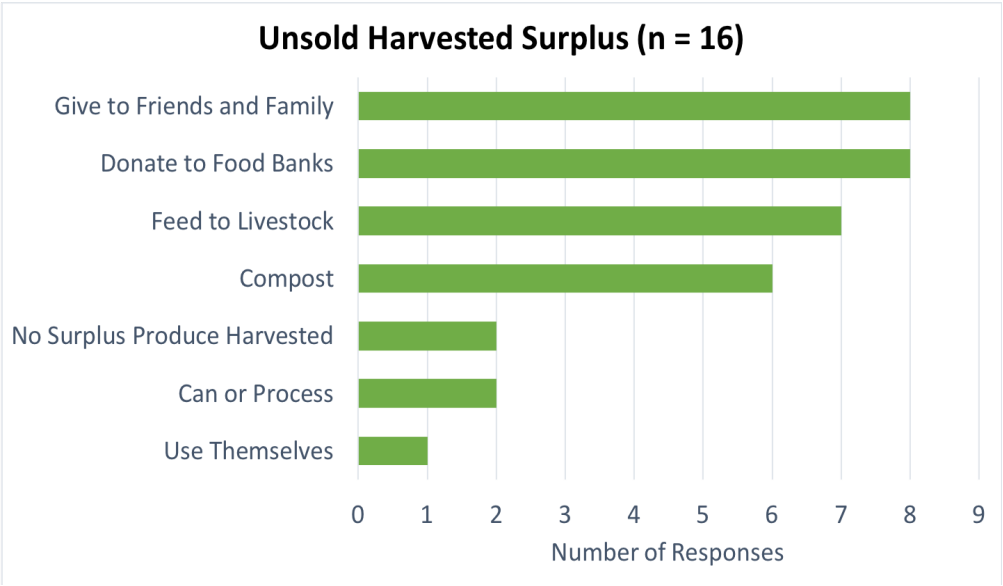
Figure 6: Amount of produce farmers are unable to sell at farmers markets.



Surplus: Current Management Practices

Most farmers responded to our survey that they either donate their surplus, give it to friends and family, feed it to their livestock, or compost it (Figure 7).

Figure 7: Ways farmers get rid of unsold harvested surplus produce.



Our analysis of data from the Capital Roots farmer roundtable discussion on how farmers deal with their surplus produced similar findings on the most common ways in which farmers deal with their surplus. Nearly half (47%) of farms with surplus responded that they got rid of it through donations, frequently with the help of gleaners. Only one farm responded that they sold their surplus produce.

Reasons for Surplus

In semi-structured interviews, farmers discussed the reasons they have surplus (Table 3). Most farmers cote a shortage of time, labor and money as a reason for surplus, as well as elements of their business strategy, and the unpredictability of weather and other factors.

Table 3: Farmer quotes that reflect various themes that contribute to surplus.

Shortage of time, labor, money	Business strategy	Unpredictability of weather
I, like a lot of farmers, have or would have much more production if I had labor help to manage [and maintain] things...We don't have the labor or the time to do the collecting and the gleaning. *-Dutch Barn Farm* You're right, there is a certain price where it's not even worth it for their labor to get it. *-Pitney Meadows* Customers don't pick all the apples and so some fall on the ground and we can't afford to go back and pick up the few that are left. *-Indian Ladder Farm*	Last year I had more butternut squash than I could get rid of primarily because Nice Orchards down the road was not in business; They had been buying all of my butternut squash and so I had to find someone else to get rid of it too and I did but except that I couldn't get rid of all of it. *-Cliff's Vegetables*	We like to think we have some control over the size of the crop, but the fact of the matter is Mother Nature and the Good Lord decides what's going to be a crop and what isn't going to be a crop by whatever events, so we can't fine tune and only manufacture what we need, we'd rather come up and have a little bit more than a little bit less because we have to have a certain size crop to stay in business. *-Indian Ladder Farm* If you have a terrible rainstorm - nobody comes to the market. So with the CSA we know exactly how much to harvest *-Denison Farm*

We also asked farmers in interviews how they currently deal with surplus. Most farmers mentioned selling it at a discount, composting, donating, or utilizing it somehow as their current management strategies (Table 4).

Table 4: Farmer quotes that reflect ways farmers deal with surplus.

Sell at a discount	Compost	Donate	Utilize
Clear the freezers week sell residual produce at a very low price. -*Dutch Barn Farm* Generally we do take some seconds to markets, like tomatoes that are starting to get a little soft so we can sell them by half bushel instead of by the pound....25% of what we normally would get... you're getting rid of it, and you're doing someone a service. -*O'Trembiak Farms*	It's more work to sort it out than it's worth sometimes. That's why I have the chickens and ducks, they compost it for me. -*O'Trembiak Farms* If our members don't use it, it goes in the compost, which I don't consider to be a waste in the sense that it's composted. Other other hand, it isn't it's primary intention, to grow it for compost. -*Featherbed Lane Farm* Apples left on the ground actually end up getting recycled and the nutrients get back into the tree for next year's crop. -*Indian Ladder Farm*	Someone regularly comes around and gets stuff for Franklin street, there's a food pantry there, and also we get stuff and give it to the, it's on circular street there, the congregational church. -*O'Trembiak Farms* Our surplus is going to be donated...one of the things I really wanted to do with this as a community farm, is to devote a percentage of what we grow specifically for that. -*Pitney Meadows*	If I have cosmetically challenged vegetables that is, if there's a little bit of cucumber beetle damage on a cucumber, rather than having to compost it or feed it to the pigs, I can peel it, and chop it up and put it in the Greek salad, and everybody's happy, so that's where our cosmetically challenged produce goes. -*9 Miles East Farm*

Interest in New Surplus Management Program: Concerns

Throughout this process, various themes emerged consistently in nearly all responses (Table 5). Generally, farmers expressed the most concern about the potential input costs associated with the operation we proposed - primarily the price to harvest produce that might normally be left in the fields etc., as well as whether the endeavor would ultimately be profitable for them. The cost and logistics of distribution were another concern, as was the unpredictability, of produce, because farmers would most likely be unable to predict what seconds or surplus

produce they will have at what time. Volume of produce was also mentioned several times, as many of these farms are as small as 2 acres.

Table 5: Popular farmer concerns with our proposal.

Economics	Distribution	Unpredictability of surplus	Volume
I could grow more if I had labor, but I'm not going to get into that either. -*Cliff's Vegetables* It's really a challenge, especially for smaller farms or farms that rely on kind of like direct marketing to sell at wholesale prices. -*Featherbed Lane Farm* Why harvest it if you can't sell it? -*O'Trembiak Farms* Even the winter market - it's outside of the winter limits - people don't come. We just decided it's hard to do the winter growing - we need the time in the winter to regroup. -*Denison Farm*	Maybe it wouldn't be worth my organization time and the delivery time and the packing time to go and take it places. -*Featherbed Lane Farm* Is Mike going to drive in to the Frank Community Center when he's running a farm, he has a kid, he has horses, he works part time, and he's a thirty minute drive away. It's asking a lot of small farmers, that's for sure. -*Pitney Meadows* They have an amazing facility and they will come and pick up the produce - that in itself is a real incentive for farmers, if somebody will come. -*Denison Farm*	I get to the end of the farmer's market and/or season and I have say butternut squash that I can't get rid of then I would have it then, but I couldn't tell you now or even a week before. -*Cliff's Vegetables* You never know, your growing for this particular market and then your scrambling. -*Pitney Meadows*	We don't generally have a lot of surplus because we kind of know what our markets are and we kinda only pick pretty much what we think we're gonna sell. -*O'Trembiak Farms* We don't end up with a lot of surplus. -*Old World Farm* We have that 120 acre flat continuous open field and not one peice of infrastructure on there to support being a farmer, that's part of the problem. -*Pitney Meadows*

Several other concerns from farmer were responded with lesser frequency (Table 6).

Table 6: Less mentioned concerns with regards to selling surplus/seconds produce.

Difficulty of selling to retail stores/consumers	That's extremely difficult. Extremely difficult for a small producer. They want to be able to contract you ahead of time, they want large quantities, and they will beat you up for price. You've got a middleman in there and so that's going to bring the price down for me, because he's gotta make a profit and the supermarket and stores are going to beat him up just like anybody and so they're going to pay the absolute minimum and then he's gotta make a profit and that all comes downhill to me. -*Cliff's Vegetables*

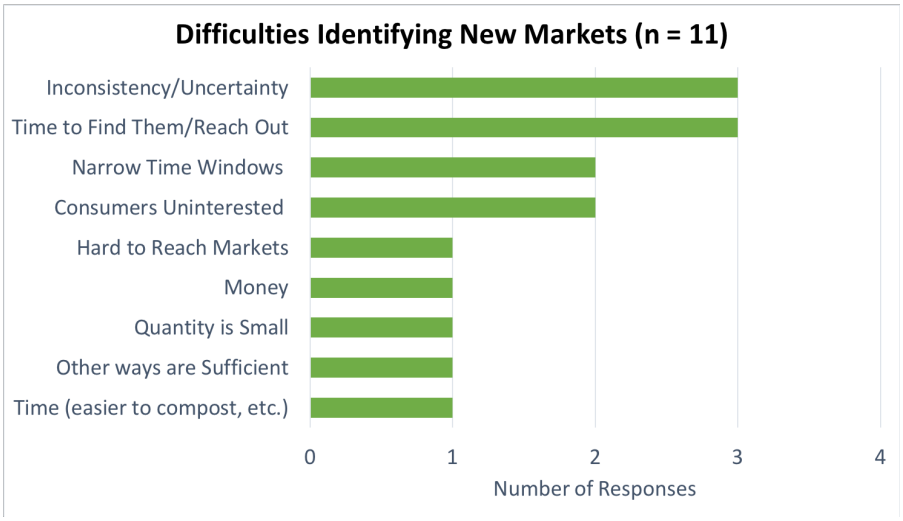
Other outlets that use it	We have an awesome community center in mechanicville. We just took 12 bushel boxes down to them for their food pantry and they were thrilled. We do that whenever we have surplus. *-Denison Farm*
Timeframe (short shelf life)	You're going to be dealing with, by definition, shorter shelf life because it stuff they tried to sell but can't and how they are going to get it there...forget the price, to just have that stuff available, it has to be stored somewhere... *-Pitney Meadows*
Consumer lack of awareness about food	The responsibility and the situation is, it starts with the consumer and not from the farmer. Consumer demands have to drive the process because we only spend less than 10% of our disposable personal income on food, but it's still a huge sum of money. So I think that's the big concern of mine is that I just want to have the process be more, people be more thoughtful about it. When they are they usually agree. But they don't think about it. *-Unknown*
Being taken advantage of	Of course, we'd like the money, and we're already giving it away, but one thing that we have to watch out for is training people - we don't want to train people to come late in the market for discounts because otherwise that's what they'll start doing...if you give this person a discount, there's someone over here that's hearing it, they're gonna want the same discount, so you really have to watch what you're doing. *-O'Trembiak Farms*
Don't have time to deal with a new service/learn a new system	*When asked about potentially using an online surplus platform:* It would have to be an extremely intuitive, free, simple system, otherwise I'm not likely for the amount that we're moving, and the fact that it's sporadic in when it's offered. It wouldn't be worth it for me to try and use a system whereas right now I just email; relationships at restaurants that I've already made and check in with them. But if we got to where we're regularly having more or it's an extremely user-friendly system that's free or whatever, maybe then it would be worth it. *-Featherbed Lane Farm*
Not interested in growing business	*In response to whether he would hire more labor if he had the money because a there were stable markets to enter:* No that wouldn't work for us. Getting bigger is not the answer. Being more efficient is the answer. *-O'Trembiak Farms*

Needs and Recommendations

Along with concerns, many farmers also expressed interest in the program, and spoke to their desires and needs regarding it.

Surveyed farmers were asked to explain any difficulties they've had identifying new markets for selling surplus produce. Many cited time to find such markets, the inconsistency and uncertainty of surplus, and the narrow time windows associated with surplus as major barriers to their doing so (Figure 8).

Figure 8: Barriers that prevent farmers from accessing new markets.



In an open-ended question, surveyed farmers elaborated on the difficulties they face selling surplus (Table 7).

Table 7: Anonymous Qualtrics responses on the difficulties of finding markets to purchase surplus.

Difficulty identifying markets for surplus produce
Limited Time windows - If you have excess most others have it also.
I'm limited in time availability... While I've thought of going direct to restaurants, I haven't found time to do the legwork as last year was really proving we could grow.
The problem is not so much identifying the markets--they are pretty much the same markets that exist for all produce--as getting to or into those markets. New outlets require contacts and time and employees.
Quantities (no full trucks), so it's expensive to get it somewhere.
Inconsistency. As it is surplus, we did not plan on having that produce available at that time. And cannot make promises to customers say each week two cases of lettuce etc.
Most farmers don't have extra help and it still costs to package. People won't buy unless discounted - but all the farm costs are the same, and less shelf life at retail.

In anonymous survey responses, farmers also discussed difficulties they have had expanding their own market presence in general (Table 8).

Table 8: Anonymous Qualtrics responses on the difficulties expanding their market presence.

Difficulty expanding market presence
My big problem is scale. It is so expensive in NY to pay for insurance and disability for 1-10 employees that it is difficult to right-size my business.
Slow to expand as you have to gain produce managers trust - shelf facings are expensive and you have to prove yours will make them more money.
Identifying new market options.

Given these responses about the difficulty of expanding their market presence - especially for surplus and seconds produce - it is clear that a service helping farmers handle this product could potentially be beneficial for the, if their concerns are taken into consideration.

When asked what kinds of services would be most helpful from community groups for handling surplus, harvesting, distribution, and pickup/delivery had the highest number of responses from survey respondents (Figure 9). Several quotes from open-ended responses elaborated on these same feelings (Table 9).

Figure 9: Services that would help farmers deal with surplus.

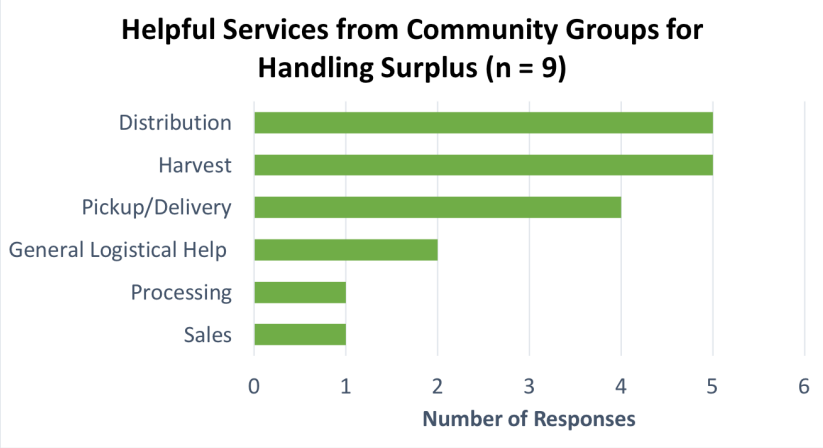


Table 9: Anonymous Qualtrics responses on helpful services community groups could provide to deal with surplus.

Most helpful services from community groups
Distribution would be far and away the biggest help.
Labor for harvesting asparagus is needed to maximize production. Current markets do not support such labor costs. I would be happy to provide asparagus at a very low cost if there was a mechanism for plant care and vegetable harvest.
Distribution would be most helpful by far.
Hmm. Well, I have not found community groups that *think they want to help harvest* to be useful-- harvesting is time and weather sensitive, and takes skill. And the law is not on the side of volunteer farmwork. So technically, the only useful thing would be picking up farm seconds and processing them into something that is shelf stable and delicious.
We have benefited most from direct relationships with food banks, churches and other individuals in the community that help us with labor, harvest distributing and using the excess produce.

Farmer Interest in New Surplus Management Program: Optimism

Semi-structured interviews also revealed the reasons that farmers would be susceptible and eager for such an operation that would deal with their surplus produce (Table 10).

Table 10: Optimistic farm responses to having surplus and eager to sell surplus.

Have surplus, seconds, and/or unharvested produce	Eager to have new source of income/support for small farmers
There are a lot of places where [end of year] gleaning or assisted production is entirely doable, would be something I think farmers would be open to. -*Dutch Barn Farm*	I think there are quite a few farmers who would be happy to have an organization come glean and buy gleaned produce but what is great is that - if you gave them $100 they'd be over the moon happy but often times I think they'd just be like sure, take it! [without getting paid]. -*Dutch Barn Farm*
I took my daughter to Saratoga Apples this Fall to pick apples and there were, I mean literally, tons of apples they can't use. It was like carpeted on the ground, if nothing else feed them to livestock. It was obscene how many apples there were. -*Pitney Meadows*	Yeah Capital Roots would be in a great, especially if they found ways to fundraise to be able to pay farmers a better price and keep the price low for the residents, you know, the population they're serving.

I'd say we'd often end up with extra like lettuce or lettuce mix, cucumbers, some summer squash, in general, cucumbers and summer squash. We don't have a giant surplus, I'd say those are the items. Tomatoes, we often end up with a flush of tomatoes. *-Featherbed Lane Farm*	*-Featherbed Lane Farm* It's a great thing, particularly for small farmers who are always struggling. One of the things about the smaller farmers around here, if their not getting close to retail price, they can't survive that's why so many of their business plans are based around going to farmers market or CSA because with a smaller farm. *-Pitney Meadows*

Other responses appeared to a lesser extent (Table 11).

Table 11: Optimistic farmer responses to dealing with surplus.

Helping low-income communities	It could be a perfect virtuous circle because your helping small farmers and your also helping low income people have access to fresh food. And your not giving it to them, your selling it to them, so there's some earned income there. *-Pitney Meadows*
Happy to have middleman involved	Capital Roots bought 300 something pounds of beets from us once already this year. They had someone come and pick it up, super convenient for me, I like their mission, found a price that for me was lower than I get at a lot of my other markets but for them was a lot more than they often pay for their food, so I felt like they were trying to make that work for me. On the whole, I think they're doing a good thing. I very much appreciate what they do and would be happy to have other opportunities to work with them on a general level. *-Featherbed Lane Farm*
No current Market for Seconds	What's happened is that the supermarkets have created environments that all apples are big and beautiful. Well, apples are like people. Some of us are big and beautiful, and some of us aren't. *-Indian Ladder Farms*
Current places for surplus can't be only solution (food banks, donations, etc.)	Capital Roots does a good job with that and we try to work with food pantries and things of that type and problems we find with food pantries is they have no ability to store anything. So they can only buy what they can giveaway in an afternoon or a day or something like

that. They work out of a small space so there's a glitch in the system, that apples are perishable and they can be refrigerated but if they're not they need to be distributed really quick. And you want to make sure you leave some shelf life for the customer. -*Indian Ladder Farms*

Many farmers were excited about the prospect of this operation, and voiced general support (Table 12) and ideas for the operation (Table 13).

Table 12: General support of farmers for our proposal.

General Support:
I think there are quite a few farmers who would be happy [to have an organization come glean and buy gleaned produce] but what is great is that - if you gave them $100 they'd be over the moon happy but often times I think they'd just be like sure, take it! [without getting paid]. -*Dutch Barn Farm*
I think it's a neat project and hopefully there's some ongoing interest in getting good food from local farmers and trying to get them money from that food and that's important for farms in the area, as well as making that food more accessible. -*Featherbed Lane Farm*
Would like more volunteers from organizations that know what to do, sometimes we produce more produce than volunteers can handle. -*Unknown Farm*
If at the end of the year when we're done, if people wanna come in and glean it, that's fine, you know, but that's just at the end of the year. -*O'Trembiak Farms*

Table 13: Solutions from farmers to deal with our proposal.

Ideas for Solutions:
I would set up opportunities for one of the skid sustainability groups to say hey let's schedule some farm labor options to produce food that would otherwise rot in the field or not ever get harvested. -*Dutch Barn Farm*
"Clear the freezers week" sell residual produce at a very low price. -*Unknown Farm*

To me, the most obvious grant that would be needed if either, grants to farmers to subsidize the price of selling to the school, or grants to schools to subsidize buying good produce from farmers.
-Pitney Meadows

My approach to solving them has always been market-based, that is find a customer who can in some way pay something for what it is that you're providing because in my experience, people often don't value things that are given to them for free, but that is my experience and I think I would be very conscious of customer project mismatch. That is, if you did bring a big load of arugula to the customer, do they want arugula? I don't know the answer. But I would be very conscious about that issue of making sure that what you're providing isn't something that you think is a good idea but that you have some indication, some reason, for believing the customer actually wants.
-9 Miles East Farm

Therefore, the most useful service for the majority of farmers would be a middleman - such as Capital Roots - that would handle the logistics of the operation, providing services for distribution, pickup/delivery, and help with harvesting.

Retail

The following section details this study's findings regarding new retail options for surplus and seconds produce.

Stewart's

We interviewed representatives at the Stewart's Shops Headquarters in Ballston Spa to determine if their storefronts could be an outlet for local surplus. While they were interested in ramping up support for the local food economy, they listed various strategic reasons for why such a program would be unlikely for them. For starters, space is a premium and at the moment, they barely sell the select produce that they do stock. The fear is that if an apple cannot sell, then local produce will take up space (Table 14). Consistency is another concern that they brought up (Table 14). Stewart's is a corner store that customers depend on for staple items. Farm surplus is not conducive to this type of stability. There is no way to regularly depend on the available of

specific items through this program, because farmers can't predict what kind of surplus they will have.

Stewart's recommended that we speak to local distributors in order to see if they could be a viable option for the surplus, which would be an area for further research.

Table 14: Stewart' Shops response to our proposal.

Lack of Demand	Consistency
After bananas, the next item is like apples and stuff like that, and we're only selling like 2 per shop per week.	Apples we struggle with, always carrying a local one because the seasonality changes and availability and things like that, we're trying to have a consistent product for the stores and for the customers and stuff like that.

FINDINGS: CONSUMERS

Along with farmers and retailers, we analyzed data collected from Capital Roots, as well as information collected through our own semi-structured interviews with consumers. Our interviews with local organizations - including the Saratoga Economic Opportunity Council and Comfort Food Community - provided important information and insight regarding how assistance can best be implemented.

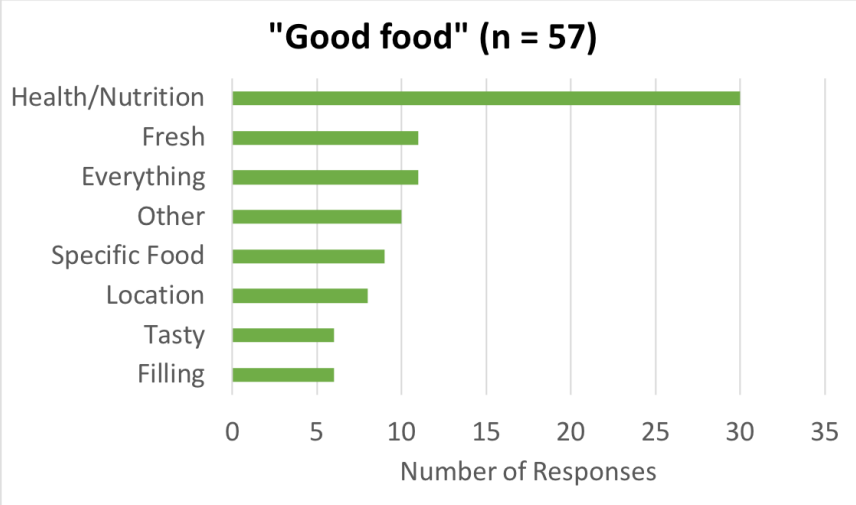
Consumer Data from Capital Roots

Capital Roots provided us with consumer data from 47 individuals from both rural (25) and urban (22) settings within Saratoga County. We supplemented this data with 12 surveys that we collected during lunch at the Soup Kitchen in Saratoga Springs, NY at New England Presbyterian Church. The purpose of this event was to collect responses from those coming to the soup kitchen for a meal - many of whom experience low food security - in order to learn

what their needs are regarding access to fresh produce at a low price. These responses were then added to the existing data, culminating in 59 total responses.

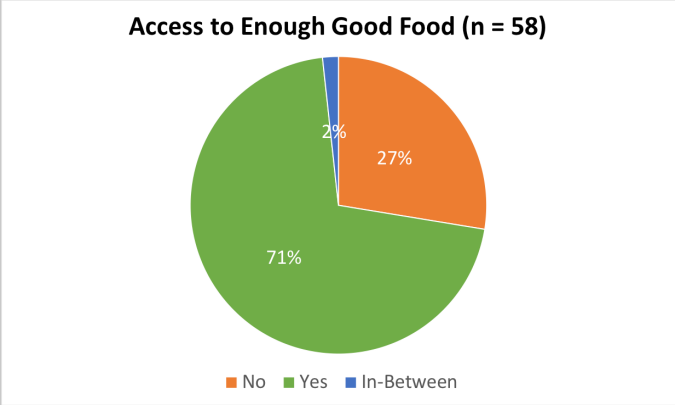
When asked to define what good food meant to them, 11 respondents used the word "fresh." Health and nutrition were at the core of many definitions (Figure 10).

Figure 10: When asked, "What does good food mean to you?".



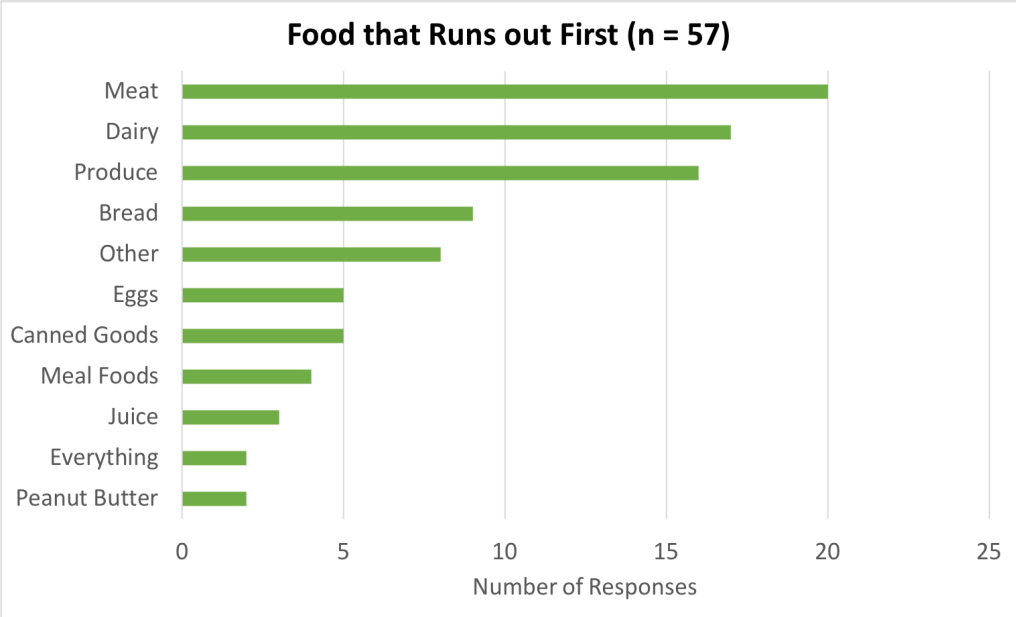
These terms appeared 30 times throughout the responses. Of those individuals interviewed, 27% self-identified that they do not have enough good food (Figure 11).

Figure 11: When asked, "Do you get enough good food?".



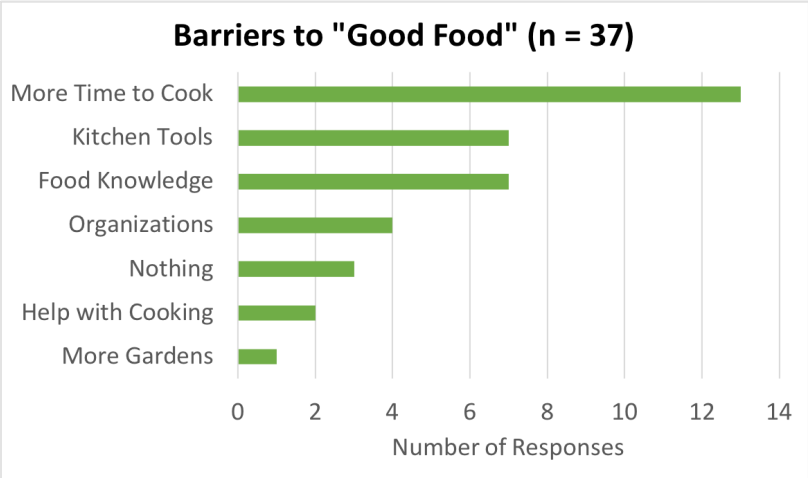
When asked to describe what foods they run out of first, 16 people explicitly identified produce (Figure 12).

Figure 12: When asked, "What food do you run out of first?".



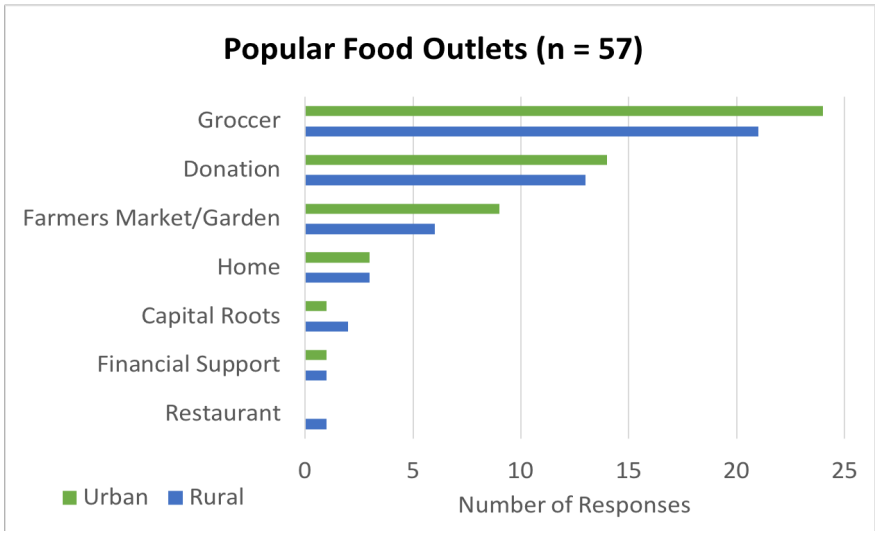
However, defining good food is not necessarily the crux of the problem. The true crisis lies in access, availability and utilization of good food (as identified in the WFP definition of food security). Barriers to good food included that individuals identified include: more time to cook, kitchen tools, help with cooking, various organizations, nothing, or access to more gardens and growing spaces (Figure 13).

Figure 13: When asked, "What barriers to good food do you have?".



The locations that consumers identified as where they generally source their food varied. 46 consumers stated that conventional, brick and mortar grocers were where they purchased the bulk of their food. 26 respondents identified donation-based feeding programs, such as food banks and pantries, and 2 identified Capital Roots as a source of food. Some individuals (15) purchased food from the farmers market or from farms directly. In regard to economic or financial aid (by way of the government), only 2 of the individuals utilize these systems (Figure 14).

Figure 14: When asked, "Where do you get good food?" Responses from individuals living in urban and rural places.



Saratoga Economic Opportunity Council (EOC)

In an interview with Angelo Calbone of the EOC, he discussed the role of agency and the importance of creativity in the implementation of solutions (Quote Chart X). He discussed current initiatives that the local food pantry and the EOC are already participating in, as well as future programs that could be implemented. One such solution is the creation of a "choice" pantry that gives individuals the ability to self-select food in an environment similar to a standard grocery store. This grants consumers agency, which is crucial to resiliency and long-term food security.

Calbone made clear that, in order for everyone to succeed in achieving both food security and financial compensation for surplus, creativity is key. Creativity for all parties involved is crucial to come up with projects that support all of the stakeholders (Table 15).

Table 15: Angelo Calbone's responses to the importance and need of agency and creativity.

Agency and Creativity
Instead of packing for the customers, what we're doing is we're transitioning over to what's called a choice pantry and what that means is the customers will come in and choose the foods themselves. So, they'll kind of get a shopping list of an allotted this many items, this many of these, this many of those, and then they walk around and go shopping. So the same exact experience that you or I have at the grocery store, they'll be able to have at a pantry.
It's a curveball from left today, curveball from the right tomorrow, you need to be able to put together and just be creative with what's coming in. I think we're really good at that, but I think what you'll find is that the customers that we serve are also really good at that. They're great at being creative.

Comfort Food Community

Through our semi-structured interview with Comfort Food Community, located in Greenwich, NY, we gained insight into the many barriers facing consumers with regards to accessing fresh produce, as well as their innovative solutions to help these communities. Understanding their current food-based initiatives helped us create recommendations.

Comfort Food Community recently launched their Food Farmacy Pilot Program, which is supported by a $175,000 Innovation Grant from Adirondack Health Institute and Hudson Headwaters Health Network. This year-long pilot program increases awareness and access to fresh produce for healthcare consumers. Through this particular grant, the fresh produce distributed to participants is bought from local farms. As we learned through our interview, their healthcare clients are typically low-income and have significant health issue, such as diabetes. As indicated in Table 16, there are many barriers that prohibit people from gaining access to fresh produce that would promote a healthy lifestyle - such as the high costs of healthy foods, difficulty traveling, and willingness to try new foods. Table 16 also demonstrates the innovative solutions used by Comfort Food Community to help their healthcare patients, such as ways to lessen the burden of travel, increasing general knowledge of services available, and implementing a coupon-based program that would allow individuals to purchases food from farmers markets.

Table 16: Amelia Gelnett response to the barriers of accessing healthy produce as well as solutions that could help solve the problem.

Access	Solutions
Of course, affordability is huge because eating healthier is more expensive.	It's a two week share essentially so that way that's lessening the burden of having travel there every week too.
Transportation plays such a big role in it, that's a frequent one.	I made a full chart on where else they could attend if their lacking non-perishable items, like what are the other food pantries around in that area are, what they require, how often you can go.
It's really cultural too, what kind of a household you grew up in definitely plays to what your going to consume as an adult.	We discussed also developing a produce prescription plan, people would actually have coupons essentially that would be used to go and purchase at the farmers market.
There's a fair amount of culinary education and just training because a lot of it is unfamiliar. Helping people acclimate to some very unfamiliar foods is a big thing, so recipes are written so you can mix and match different items, I try to keep it simple.	

RECOMMENDATIONS

In order to find a solution that addresses concerns raised by each of our stakeholder groups - farmers, retailers, and consumers - we propose several potential solutions, some of which address the needs of certain stakeholders more than others. Despite our stated purpose of finding market-based solutions to the issue of surplus, some of these solutions still work within the emergency feeding system. We recommend that these ideas serve as starting points for those wishing to expand upon our research.

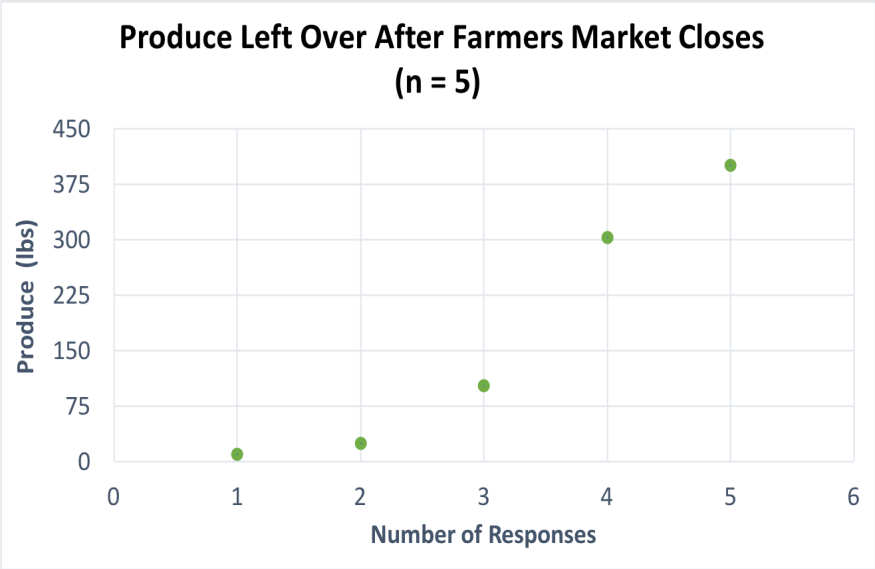
Grant for Harvesting Efforts

We propose an increased role in grant funding that would allow organizations to pay farmers to harvest their excess produce that would otherwise be left in the field. Grants can be distributed by larger institutions, such as the Adirondack Health Institute, to organizations who share similar goals. The purchased produce can be distributed to communities in need through soup kitchens or feeding and health programs. While this proposal would promote economic resilience among local farms, it would not give low-income communities the ability to purchase fresh produce themselves, as the beneficiary of grant funding cannot use the grant to make a profit.

Grant for Purchasing Surplus from Farmers Markets

As indicated by the Squash Hunger data - which found over 9,000 lbs of produce left over after farmers markets - several farmers responded to our online survey that they have unsold produce leftover after farmers markets. Amounts ranged from 10 to 400 lbs, amounting to over 800 lbs from these farmers alone (Figure 15). These numbers indicate that farmers markets definitely produce a large amount of surplus.

Figure 15: Leftover produce after farmers market closes. Measured in pounds.



Funded by a grant or another fundraising opportunity, Capital Roots could implement a program that purchases surplus at the end of the day at farmers markets, and then sell this produce to retail outlets. These could include stores interested in purchasing the food, the Sliding Scale CSA, the Veggie Mobile in Saratoga County, Headwater Food Hub, distributors like Antonucci's, or other options. Similar to Food For All - which allows vendors to post and sell their discounted surplus produce, and will be discussed further in the next section - an app could perhaps be another potential way to sell this food. The organization that collects the surplus can post on the app, and interested individuals can come to a determined location to purchase it.

Local farmers who struggle selling their excess produce would benefit from these transactions, and retail outlets for this food could be selected to best meet consumer needs. However, as expressed in quotes given previously, farmers worry that they will then be taken advantage of in this interaction. Further research and thought must be given towards this solution before implementing a program in order to address this concern.

Capital Roots currently has programs that collect food after farmers markets, but these efforts could be expanded and practiced more consistently, establishing relationships with farmers and interested retail outlets, and perhaps also drawing on the follow market-based recommendations.

Community Fundraising

In addition to grants, fundraising can also be used to support farmers financially and incentivize more meaningful management of surplus produce. This would address some of the reasons farmers cited for having surplus crops (i.e. lack of labor or time to harvest or wash) as well as concerns expressed by many farmers regarding the financial burden of activities, such as packaging and delivering, associated with the donation of surplus. For example, a portion of the money Skidmore Cares annually donates to the Saratoga EOC could be exclusively reserved to pay local farms, covering the cost of delivering their surplus produce to the New England Presbyterian Church Soup Kitchen on a weekly basis. Although not a market-based solution, this would both support farms financially and increase the availability of fresh, healthy produce for low-income consumers.

Market-Based Recommendations

In seeking market-based solutions for produce, we hope to address agency and resiliency in low-income, low-food secure communities. Providing access to affordable and fresh produce at common sources of food such as grocery stores is key in allowing individuals the ability to purchase foods for themselves.

Pay What you Can Produce

One solution is a Pay What you Can Produce storefront in Saratoga. This model allows discounted and reduced-price seconds or surplus to be available at a discounted rate for consumers. One major concern regarding this model is that anyone can shop there regardless of their financial situation. A way to address this is with a sliding scale fee. A sliding scale fee provides prices based on pre-registered financials. These financials can be food-stamp based, Women, Infants, and Children (WIC) based, or based on any other preexisting criteria. The storefront would allow individuals the independence of shopping at a stable store, and the agency and resiliency to do it for themselves.

Seconds or Surplus Community Supported Agriculture (CSA)

Similar to the Pay What you Can Produce model, a seconds or surplus CSA system, individuals could sign up for this reduced-rate CSA by way of preexisting criteria (WIC, food stamps, etc.). The CSA would be grab-bag style which means that there is no expectation of consistency or regularity. Instead, the boxes would have a mix of whatever surplus ended up on being available for that week. This surplus could come from grant-funded gleaning/harvesting efforts, or from other methods of obtaining farmer surplus. Donated produce could also potentially be used for this CSA, and the bags could be given away for free. Multiple options exist for both procuring and distributing this food, benefiting various parties in various ways.

Food for All

Food for All is an app that connects producers with consumers. It is a platform for producers to post about surplus the moment they experience it. Consumers can then purchase this surplus at a reduced rate. This app-style solution would allow for an effective solution without

the creation of any new infrastructure. Instead, Producers and consumers can simply download the app and purchase surplus or seconds produce only when it happens. The food when then not have to be stored, and there are no expectations for keeping food in stock for outlets that require consistency in the produce they recieve.

Expansion of Veggie Mobile to Saratoga County

Currently, the Veggie Mobile initiative through Capital Roots does not have a route that goes through either urban or rural Saratoga County. The mobile market could stock farmer surplus and seconds produce procured in various ways, and readily address areas with food apartheids, providing access for low-income, low-food secure individuals, and addressing their ability to purchase fresh produce.

CONCLUSION

Food security is an extraordinarily complex issue, with many intersectional concerns. Through innovative solutions and funding from grants or fundraising efforts, low food security in Saratoga County can be addressed through farmer surplus - another large issue, creating large amounts of food waste and a loss of income for farmers. In order to address the needs and concerns of all stakeholders - farmers, retailers, and consumers - creative solutions need to be designed in order to benefit all parties involved.

Our recommendations should serve as the foundation for further research and development of programs that aim to reroute farmer surplus - thereby providing small, local farms with additional income - while simultaneously increasing resiliency for low-income consumers. These solutions should offer individuals experiencing low food security to shop for

fresh produce at cheap prices, decreasing their reliance on emergency feeding programs, and increasing their feelings of agency and self-reliance.

As with all social and environmental justice issues, creativity is key to finding solutions, and this research should guide those interested in implementing programs with these goals in mind.

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APPENDIX A

Map of the distribution of agricultural land in the Capital District. Source: Capital District Regional Planning Commission (CDRPC) (2013).