

*CASE STUDY*

**COMMUNITY  
SUPPORTED  
AGRICULTURE:  
A MODEL FOR THE  
FARMER AND THE  
COMMUNITY?**

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## EXECUTIVE SUMMARY

This case study provides an analysis and evaluation of Community Supported Agriculture (CSA). To examine CSA as a potentially viable Future Economy Initiative, interviews, a survey, and secondary data sources were utilized. From May 2014 to October 2014 16 in-person semi-structured interviews with CSA farmers were conducted across three counties in Western Massachusetts. A copy of the interview and survey can be found in the appendix. There have been few comprehensive efforts to analyze CSA across the United States, however this study provides an overview of the CSA and the resulting economic, social, and environmental outcomes.

CSA represents an innovative way to organize production and distribution on the farm by altering the farmer-consumer relationship. Originally CSA set out to align the interests of members seeking fresh, sustainable, local food, with farmers seeking to sustain themselves on a relatively small plot of land by engaging in high diversity land intensive production destined for their neighbors. In theory, a farmer decides how many families they can support, perhaps 100 families a year. They determine the cost of production, including a living wage for the farmer and workers, and then divide total farm costs by the 100 families that become members of the farm. Members pay up front for their share, before planting begins (in the winter when farmers are buying inputs), providing working capital for the farm. Through purchasing a share, members don't receive a fixed amount of produce; rather they receive a share of the harvest. By purchasing a share, "[members] are taking a risk with us on the farm," (RFF)<sup>1</sup> representing an important risk-hedging strategy for many CSA farms since they don't qualify for federal crop insurance or subsidy programs. Thus, the CSA provides farmers with working capital, secure markets, and a way to hedge their risk, while members receive fresh, local, sustainable produce and additional non-market value from supporting their local farmer.

The study found significant variation in CSA farm structure, resulting in mixed outcomes across the Future Economy Initiative indicators. Farms generally failed to provide adequate income to farmers and workers; however the notion of livelihoods considers more than simple economic measures. When CSA farms are compared to USDA averages, they provided superior income and employment, still far from a living wage. Farmers in the study area frequently discussed non-monetary forms of compensation for their work, particularly noting benefits from the lifestyle CSA helped them achieve. The study did confirm that CSA provides access to working capital for farmers, greatly reducing their reliance on financial institutions and improving their profitability. Results also suggested CSA greatly reduces the barriers to entry for young and new farmers through improving access to land, and improving farm viability on limited acreage. This occurs through relationships with organizations and individuals seeking to preserve land and support sustainable land use. The limited acreage was supported by intensive and diverse agricultural production, which is not unique to CSA, however CSA can provide an advantage to these farms through a guaranteed market. Regarding opportunities, CSA farmers were more than three times as likely to be women compared to average US farms. This may be because both improved access to farming and by CSA providing a type of farm production and distribution that may be more appealing to women, though more research is necessary. Finally, all CSA farms in the study claimed to follow organic growing practices for part, of all, of their crop. Many farmers went 'beyond organic' to provide long-term ecosystem services while improving yield and profitability.

Many challenges remain for CSA farms to improve performance across the Future Economy framework. Providing fair compensation to all who spill their sweat on the farm, coupled with improving access to food for low income members are the central challenges facing CSA moving forward. If compensation is not improved, not only are farmers and workers being taken advantage of, but also it may become increasingly difficult to find people willing to farm in this manner. Moreover, farmers generally recognized that CSA was out of reach for low-income members, greatly limiting the people they can reach and improving access to healthy, fresh, local produce only to those with the means. The challenge presented by the need to fairly compensate labor while providing nourishment at an affordable price will test the viability of CSA as a Future Economy Initiative.

First documented in the US in 1986 and gradually spreading through New England, CSA has continued its growth across the country, reaching over 6,000 farms nationwide. If CSA is to provide an alternative to business as usual that reaches beyond niche markets, external assistance is needed. With the current industrial food complex of heavily subsidized food deeply ingrained, government action to rethink the nation's agricultural policy is essential.

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<sup>1</sup> The farms represented in interviews for this study will be referred to throughout by abbreviated names listed in Appendix C.

CSA farms cannot compete in the long-run against heavily subsidized food, and additionally CSA farms need to ensure markets recognize their extra-market value.

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## About E3 Network's Future Economy Initiative

In communities across the US, new economic institutions are emerging to challenge business-as-usual. These bold innovations respond to rising inequality, environmental degradation, and economic decline. They may forge the foundation for a more resilient and equitable economy of the future. Despite their potential significance, there is a general lack of awareness of these innovations and their impacts and there has been little systematic economic analysis of these innovations and their contribution to a potential future economy.

The Future Economy Initiative<sup>2</sup> is bringing rigorous economic analysis to these emerging innovations. Our goals are to document and study their social, economic, and environmental impacts and identify factors which contribute to their emergence, success, and limitations. We assembled a team of researchers to design a framework for analyzing future economy innovations and awarded grants to teams of researchers across the country to apply the framework to varied case studies. This case study report is one of seven presenting results of those efforts. We encourage you to explore the other completed case studies and to apply the framework in your own research and share your findings

For questions or comments on E3 Network's Future Economy Initiative, please contact Robin Hahnel, E3 Network; [robinhahnel@comcast.net](mailto:robinhahnel@comcast.net).

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<sup>2</sup> The Future Economy Initiative is a program of Economics for Equity and the Environment Network (E3 Network), a national network of economists developing new and better arguments for protecting people and the planet. Through applied research and public engagement, we seek to improve decision making and further understanding of the relationship between economy and ecology. More information available online at: <http://www.e3network.org/future-economy-initiative.html>.

# 1. INTRODUCTION

As consumers seek out fresh, local, and healthy produce, and farmers search for a way to farm in an environmentally sustainable fashion while making a living, Community Supported Agriculture (CSA) may be a solution (Oberholtzer 2004, McFadden 2008, Bennett 2009). Advocates argue CSA provides a viable model of production and distribution of food by local highly diversified farms, while creating conditions for the community and farm to join together in a “symbiotic relationship” (DeLind 2003). This is achieved through linking consumers, or members, directly to local farms. The basic economic arrangement of CSA involves members paying the farmer before the season begins, thus providing working capital for the farm, while the farmer provides the consumer with weekly produce during the farming season. In theory the consumer is buying a ‘share’ of the farm’s annual harvest, lasting an average of 24 weeks (Lass, Bevis et al. 2003). In its simplest form, this relationship provides fresh local produce to consumers, and working capital plus a guaranteed market for farmers; however, boiling down CSA to a producer-consumer relationship that describes market-based economic exchanges may disregard many important aspects of the arrangement that make CSA part of the future economy. Schneider and Lamb elaborate on the value-added aspects of CSA. Going beyond produce for a price, the CSA is actually selling a lifestyle that re-connects people to their food and the land (Lamb 1994). While at its best this relationship may enable participants to actively engage in key decisions regarding the farm, its growing practices, and its relationship with the community, in reality many CSA farms may represent little more than a marketing opportunity for diverse vegetable farms seeking to sell directly to consumers.

Since the start of the CSA in 1986 the number of farms offering CSA has grown, though they represent less than 1% of farms across the United States. While no numbers on national membership are available, CSA has been growing in popularity.<sup>3</sup> As CSA has expanded, the structure has evolved to encompass a wide variation of possible ways for farmers to organize their version of the CSA. Farms offering CSA range from very small family farms supporting a handful of families in their community and adhering closely to the original principles laid out by early CSA participants to large-scale farms using CSA as one of many marketing strategies to sell produce, and everything in-between. While advocates boast about the benefits and transformative potential of CSA, there is a lack of systematic evaluation of CSA to understand what it is and what it is not delivering, where progress needs be achieved, and to what extent it represents a viable alternative to the industrial food system.

## 1.1. History of the CSA

In 1986 the first two documented CSA farms began in the United States, Temple-Wilton Community Farm in southern New Hampshire and Indian Line Farm in western Massachusetts. They both became aware of CSA from examples in Germany and Switzerland, where small farmers had asked their local community members to pay an upfront sum in order to cover the farms’ annual production expenses. In return, the members of the communities would receive a weekly portion of the farms’ bounty, including vegetables, meat, and dairy. Upon learning of the idea, the two farms began production in 1986, selling shares to members of their community. These original CSAs only offered shares of produce. Although the direct inspiration may have come from Europe, CSA appears to have originated in Kobe, Japan. There, during the 1960s, a movement referred to as *teikei* took off amongst small agricultural producers. Although the literal translation is “partnership,” the movement insisted the proper translation was “food with the farmer’s face on it” (Henderson and Van En 2007). The movement began with a group of Japanese women who were frustrated by the quality of produce and milk available to them and their families through the conventional food system. As consumers and producers alike were worried about the health, social, and environmental impacts of extensive pesticide use, farm concentration, and the depletion of rural livelihoods that the ‘modernization’ of agriculture brought, they banded together to form member-farmer partnerships (JOAA 1993). Thus, the *teikei* system was born out of the rejection of conventional agriculture, on grounds of social, environmental, and economic justice in addition to a simple desire for fresh, quality food. For over fifty years, the *teikei* movement has continued to support farms using sustainable growing methods and meeting the needs of local farmers and consumers alike (Roosevelt 2003).

The adoption of these ideas in the United States followed suit nearly twenty years later, with the founding of Indian Line Farm. The farm had humble beginnings as an apple orchard with some 30 members, though within a four-year timeframe the farm had expanded its membership to over 150 families and produced a wide array of crops to meet

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<sup>3</sup> Data on the number of members involved in CSA is extremely scarce. Assuming the average number of shares and half-shares in the 2001 national survey are the same today, we can calculate the number of members to be roughly 640,000, though this is a very rough estimate.

their needs. As membership expanded, early advocates believed the success was driven by consumers choosing to become empowered and “vote with their dollars” for local sustainable agricultural practices (Groh and McFadden 1997). To continue attracting members of the community and provide them with a full understanding of this alternative model of acquiring one's food, the founders of the farm explained the CSA as follows:

The concept of these new cooperatives is simple: divide the costs of the farm or garden among shareholders before the growing season begins. Instead of an agriculture that is supported by government subsidies, private profits, or martyrs for the cause, they create an organizational form that provides direct support for farmers from people who eat their food (ibid.).

In 1986 a full share at Indian Line Farm was priced at \$557, the equivalent of over \$1,000 today. This is much more than the average share price in 2001 of \$429 (Lass et al. 2001) and the average share price in the study area of \$461. Perhaps share prices amongst early CSA participants were far above today's prices in part due to a stricter adherence to the initial principles of CSA. The original farmer's were committed to paying themselves a fair wage and members demonstrated their appreciation of this cost by paying higher prices. In fact, we found the average share price in the study area was about the same as that found by Cooley and Lass (1998) almost twenty years ago in the same region, representing a 50% reduction in prices today.<sup>4</sup> To explore this issue related to CSA farms, we first provide an outline of the initial CSA principles derived from the literature:

1. A share constitutes a portion of the farm's harvest, providing the farmer with a guaranteed market (Cone and Myhre 2000).
2. The price of the share is determined by the cost of production on the farm, including a living wage for the farmer(s), which takes into account the average wage of members (DeMuth 2008).
3. Members support the farm by providing working capital for farming operations prior to the planting season through pre-payment, thereby reducing or eliminating the reliance of farmers on financial institutions (Lass; Cone 2000).
4. Farmers are supported in their endeavor to grow in an agro-ecological manner. This leads to diversification of agricultural production, growing regionally appropriate crops, engaging in sustainable land management, minimizing off-farm inputs, promoting biodiversity, and an array of other ecosystem services (Groh and McFadden 1997).
5. Risk and reward on the season is shared. Since the member is purchasing a portion of the harvest, they benefit from a particularly good year (a bumper crop) and share in the struggles during crop failure (Lamb 1994, Cone and Myhre 2000).
6. Promote vibrant and diverse local food systems where growers are accountable to consumers (DeMuth 2008).
7. Rejection of the industrialization of farming through challenging members to re-evaluate their community, their food system, and their role (Kelvin 1994).

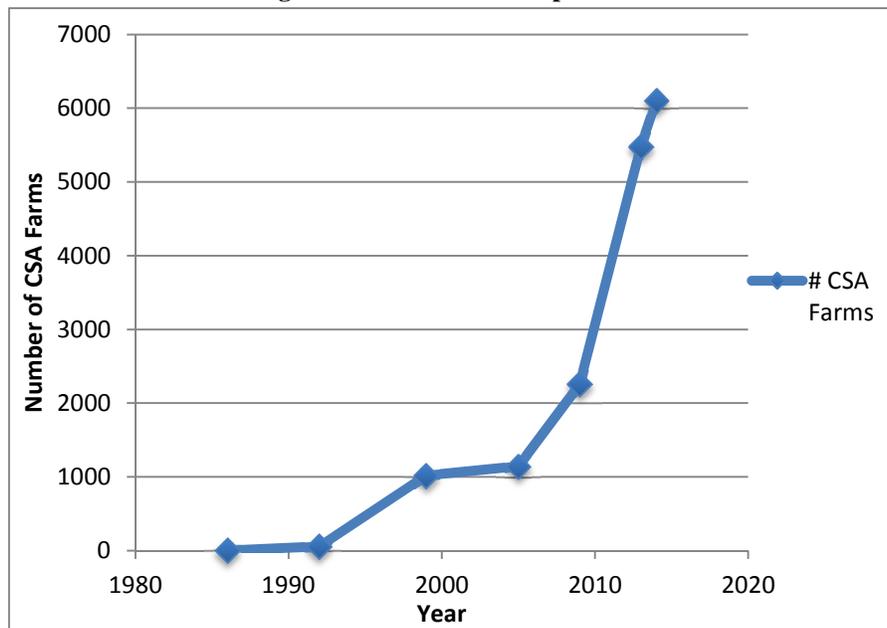
The CSA model arose partially in response to the failure of the organic movement. As the organic movement was hijacked by industrial agriculture, political pressure mounted to weaken production methods necessary for organic certification, and organic became simply another form of profit driven conventional agriculture. Organic was no longer an alternative model for those who wanted their food to support their values (Buck, Getz et al. 1997). In turn, CSA is part of the second-generation response to the domination of the industrial food system, providing a model that advocates hope will redefine farmer-member relations (Schnell 2007). Although there are significant data limitations, a historical picture of CSA expansion is presented in Figure 1 below. Starting with two farms in 1986, the CSA model experienced a significant first stage of growth in the 1990's (McFadden 2008). By 1999 there were 1,019 farms participating in CSA across the United States, however the early 2000's represented a lull in expansion with only 1,080 registered CSA operations in 2006 (Adam 2006). By 2009 a second boom of CSA growth was underway, which continues today. In 2009 there were over 2,250 registered CSAs and as the model continued to grow in popularity this number jumped to 6,200 with at least one in each state by 2014 (Harvest 2014). While CSA began with produce in the U.S., today farms offer a wide variety of share types throughout the year to further diversify the farm, improve convenience for members, and generate a year-round income. This paper will focus solely on main season vegetable shares. Although farms offering a CSA represent less than 1% of the two-plant

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<sup>4</sup> This does not take inflation into account.

million farms across the United States, they represent an often idealized alternative to modern agriculture that warrants an evaluation to truly understand where the successes, failures, and potential exist.

**Figure 1. CSA Farms in Operation**



Source: Authors' Estimates

## 1.2. Methods

To examine CSA as a potentially viable New Economy Initiative, interviews, a survey, and secondary data sources were utilized. The interviews and survey were conducted in three counties in Western Massachusetts: Franklin, Hampshire, and Hampden county, which have experienced particularly robust increase in farms offering CSA (Schnell 2007) and are located in close proximity to the original CSA farms. Additionally, Massachusetts has a vibrant local food economy, with direct-to-consumer sales accounting for 8.6% of total agricultural sales in 2007, compared to a national average of 0.3%, second only to Rhode Island at 9.5% (Low and Vogel 2011). Using local and national level CSA databases including Community Involved in Sustaining Agriculture (CISA), Local Harvest, and the Robyn Van En Center, 47 CSA farms offering a main season vegetable share in the study region were identified; however, eight farms were excluded from the study for reasons including: the operation had discontinued, the operation was a learning institution (school), the share offered was not produce based, or the operation was not the producer of the food. Thus 39 farms in the study region met the selection criteria.

From May 2014 to October 2014, 16 in-person, semi-structured interviews with CSA farmers were conducted, each followed by a brief written survey to gather general statistics on the farm and farmers. 14 of the 16 interviewees successfully filled out the survey. The surveys included questions about up to three farmers working on each farm, providing details on 28 total farmers.<sup>5</sup> The interviews ranged from thirty minutes to approximately two hours, and were conducted on the farms. The interviews followed the mental models approach (Morgan 2002), involving open-ended questions followed by probes on specific issues not mentioned in the responses. This method was indicated by the exploratory character of this study and by the ability of in-depth interviews to reveal a more nuanced understanding of CSA. The interviews were audio recorded, transcribed, coded, and analyzed. The survey consisted of 24 questions and gathered quantitative data about the farm, CSA program, and farmers. A copy of the interview questions and survey can be found in the appendix.

<sup>5</sup> When the USDA collects farmer statistics, space is provided for respondents to enter information pertaining to Farmer A (1), Farmer B (2), and Farmer C (3). The survey provided a similar framework, and therefore collected data on 28 farmers as some farms reported up to three farmers, while others only reported one.

## 2. EVALUATION

### 2.1. Livelihoods and Opportunities

*The CSA model felt like a way of converting most directly our labor into a livelihood*

-JWB

In the United States small and mid-sized family farms,<sup>6</sup> once the backbone of the country, have been disappearing since the turn of the 20<sup>th</sup> century and may soon become an artifact of the past. According to the USDA family farms still account for 97% of all farms and produce 82% of the total value in U.S. agriculture, however farms with small and midsize sales constitute 89.7% of all farms but only contributed 16.6% of total value in U.S. agriculture during 2010 (O'Donoghue 2011). Today the number of farms in the United States continues to dwindle; yet the farms that do exist are growing to gargantuan sizes, with the majority of cropland located on farms of 1,100 acres or larger (MacDonald, Korb et al. 2013). The destruction and concentration of farms resulting from the domination of industrial agriculture has come with unsustainable economic, social, environmental, and health consequences (Horrihan, Lawrence et al. 2002, Donham, Wing et al. 2007).

In response, farmers and consumers alike have sought alternative models of organizing the production and distribution of food, focusing on aspects that will support local economies, a vibrant small family farm sector, access to healthy food, and sustainable growing practices. The first stage of alternative agriculture was the organic movement. However, with its co-optation by industrial agriculture resulting in the adoption of standards in place of process, deterioration of many agro-ecological principles, and the substitution of capital for labor, other alternatives must be considered (Guthman 2007). Aside from its reduction in *some synthetic inputs*, big organic now differs little from industrial agriculture in its capital-intensiveness, input-intensiveness, and large-scale monoculture, besides its reduction in the use thereof. Thus a second generation of alternative agriculture is attempting to pick up where organic failed. The movement for local food systems is now working to incorporate a diverse set of goals, including: reducing distance between farmer and consumer, valuing produce appropriately, promoting agro-ecological practices, providing a reliable and adequate income to farmers, ensuring access for all to healthy produce that is sustainably produced, building community, and improving the value chain through value-added goods produced locally.

While production and crop revenue across the United States is thriving, farm livelihoods and opportunities are not. Researchers have found ample evidence to show that growth in agricultural yields and the expansion of acreage does not automatically translate into improved farm household wellbeing. Donham et al. (2007) found that the social and economic wellbeing of local communities does not benefit directly from the total production or sales of local farms; rather benefits are derived from increasing the number of individual farms and farmers. Gomez et al. (2000) found a negative relationship between farm concentration and economic growth and prosperity in surrounding communities. Additionally, a Pew Commission report (2008) indicates significant social and economic benefits from large numbers of farms and farmers as opposed to farm concentration, noting that communities with fewer total farms have experienced lower average family income, higher rates of poverty, and persistent low wages for farm workers. With farm livelihoods suffering, as 2012 median net farm income was \$1,453,<sup>7</sup> many farmers must re-think how they can make their living on the land (USDA 2012).

CSA represents one alternative to the trend of farm concentration that encompasses broad environmental, economic, health, and social justice initiatives in an attempt to provide farmers with improved livelihoods and opportunities. Key aspects of these opportunities include affordable and accessible land and capital, a reliable and adequate income, risk management strategies, and educational opportunities for the next generation of sustainable farmers. In this section I evaluate critically the livelihoods and opportunities present, and absent, from CSA.

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<sup>6</sup>According to the United States Department of Agriculture (USDA) a family farm includes any farm where the majority of the operation is owned by the operator and their family. Small family farms are family farms with gross sales of \$349,999 and under. Midsize family farms consist of family farms with sales of \$350,000 - \$999,999, and Large-scale family farms consist of family farms with gross annual sales of \$1,000,000 and over. Sub categories do exist.

<sup>7</sup> Off farm income thus accounted for most of the household earnings.

### 2.1.1. Affordable and Accessible Land

*I want farming to be something [the future generations] can do without making a tremendous amount of sacrifices compared to other Americans in terms of how much they work and how much they get paid for doing the work. A big part of that is land access and land affordability.*

-RFF

Under the pressure of rising land prices, competition for land use, and low farm-gate prices, small and midsize farms are struggling to make a living (O'Donoghue 2011). Large farms have responded to increases in land prices by continuing on the path to consolidation and attempting to reap any rewards from economies of scale that may exist. In fact, from 1987 to 2007 the midpoint acreage<sup>8</sup> for U.S. farms increased in all but 5 states, and actually doubled in 16 (ibid.). Through consolidation large farms are able to survive by acquiring small net profits per acre, thus embarking upon a land extensive strategy. Choosing a different path, highly diversified farms have a land use advantage through engagement in intensive land use practices, therefore potentially providing farm livelihoods on a minute fraction of the land needed by large farms. For instance, non-CSA farms are on average 7.4 times larger than CSA farms, yet CSA farms provide higher average farm incomes. CSA in particular may have a unique advantage in accessing land through alternative tenure agreements such as agreements with neighbors or community and conservation land trusts (Lamb 1994, Curtin and Bocarsly 2008). Although CSA farms are not exclusively privy to these arrangements, their community engagement and dedication to environmentally sound farming practices may make them more attractive to conservation and community organizations.

In the face of rising land prices, alternative tenure arrangements can be a win-win for communities, farmers, and conservation organizations. As farmers struggle to access land, a scarce resource for many new farmers and those located in urban and suburban regions, CSA may offer a path forward. These highly diversified farms use land intensively, as opposed to extensively, focusing their growing practices on high-value crops to provide farm viability on relatively small pieces of land (Tubene and Hanson 2002). By using the land intensively, substituting labor and capital for land, farmers are able to generate high levels of revenue per acre and can therefore make a living on less acreage. These benefits, however, hold true for all farms engaged in such growing practices, not only CSA farms (Schnell 2007). Despite some potential advantages enjoyed by CSA farms, they tend to face more pressure from alternative land uses due to the necessity of their close proximity to customers. CSA farms often face land prices that reflect non-agricultural uses, resulting in significantly higher land costs per acre (Nehring, Barnard et al. 2006).

Previous studies provided insight regarding access to land for CSA. In this study 79% of farmers in the study owned some or all the land they farmed, while 21% owned none. These findings are consistent with earlier studies on CSA farms reporting 73% and 79% ownership rates respectively, in line with USDA averages (Lass, Bevis et al. 2003, Strohlic and Shelley 2004). While 25% of farmers discussed the CSA improving access to land, with one noting, “how it [CSA] makes it possible for us to grow organically on this land. It makes it so that we can continue to afford leasing land and the landlords can have crops grown on it and aren’t forced to sell it” (ESF), 75% claimed CSA had no effect on their access to land.

Even with limited land needs, farmers throughout the study area stressed the need for secure tenure rights in order to continue investing in the land. 42% of respondents were concerned the farm’s tenure status may effect the farms long-term viability, including all of the interviewees who leased-in land. One farmer discussed the farm’s inability to purchase the land it currently rents, which had recently come up for sale, stating, “the land is very expensive around here. It’s not attainable. Even with the programs that help farmers acquire land it’s way, way out of our budget” (SSP). Other farmers noted that ownership, often financially unattainable, is not the only path forward. Rather, farm security relies on “long-term reliable tenure. Other than that, I don’t really care if we own it or lease it.” (RFF)

To ensure secure tenure rights, two farms in the study area worked together with land trusts in order to gain access to farmland. For Red Fire Farm (RFF), they were able to “reconfigure the ownership arrangement of a lot of the farmland.” The “land trust did a capital campaign and raised a bunch of money so they will buy the real estate and

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<sup>8</sup> Borrowing from Macdonald (2013), midpoint acreage refers to the measure where half of all cropland acres are on farms with more cropland than the midpoint, and half are on farms with less. This proves more informative than a simple median where half of all farms are either larger or smaller.

we can pay off our mortgage... in the end we will be paying \$20,000 less per year to the bank than we are currently with the mortgage. Over the years that's a very significant amount of money. To do that capital campaign, we appealed to our CSA membership particularly, through the whole community in general" (RFF). The other farm working with a land trust, Simple Gifts Farm, had the following statement on their website: "[w]e are the stewards of the North Amherst Community Farm (NACF), community-owned land preserved in perpetuity for farming. The nonprofit NACF brought us in as farmers to ensure that the land remains an organic community farm, a wildlife corridor, and a place for local residents to enjoy nature and walking trails. We run the farm as an ecological unit, integrating vegetable crops and livestock, and connecting our members with their food supply" (Simple Gifts Farm 2014).

These two accounts of mutual support between environmental advocates in the community and CSA farms highlight the need for functional partnerships amongst stakeholders moving forward. Additionally, two other interviewees discussed how their growing and land management practices helped them secure access to land. One farmer was thrilled to announce the landowners were working with the farm to create a land trust since "a community land trust helps to guide the management of the land" (NRF). These arrangements help protect farmland and can bolster environmentally sound land use practices through improved provisions of land to farmers utilizing agro-ecological methods. Although CSA may not directly provide farms with improved access to land, the community ties coupled with agro-ecological growing practices may make CSA farms more attractive to land trust and community assistance (DeMuth 1993).

### 2.1.2. Working Capital

*[O]ne of the big things about the CSA is that it redistributes the timing of that income from the end of the season to the beginning so we get by without loans. It's better for the farm.*

-SSP

Farming is planning-intensive work: during the winter, farmers are often spending their time cooped up inside poring over the books. As the farmers plan for the upcoming season, they need to calculate their input requirements and place orders to ensure timely delivery of seed and other necessities for the season to run smoothly. Traditionally farmers purchase inputs in the winter, grow the crops through the spring, summer, and fall months but do not sell the majority until late summer or fall harvest.

The time lag between input purchases and harvest sales entails a high dependency on the availability of credit. To purchase their inputs up front, farmers are forced to take out operating loans. Once the harvest is sold, farmers in theory recoup their initial investment but are still burdened by the interest accumulated on their operating loans. The interest accounts for roughly 5% of total farm expenses over the past decade (USDA 2012). However, without these loans many farmers would be unable to finance the whole process each spring. Previous research also suggests that credit constrained farms have a significantly lower value of production (Briggeman, Towe et al. 2009). Major lenders to U.S. farmers include the Farm Credit System, the Federal Agriculture Mortgage Corporation, the Farm Service Agency, national banks, and local/regional banks or credit unions. While farm access to credit doesn't appear to be a major constraint at this time, the interest payments on farm debt have historically doomed many family farmers (Dudley 2000). Other arrangements to access inputs certainly exist, such as contract farming arrangements where a firm hires a farmer to grow for them, in some instances providing most of the necessary inputs to minimize the capital requirements of the farmer. Whether the financing comes from the bank or the firm the farmer is left paying a price to borrow, the result is a reduction of net farm income.

To minimize the financial burden farmers face through borrowing, CSA is structured to provide farmers with access to working capital without the accrual of debt. Rather than the farmer seeking loans from a bank, members replace this rent seeking institution, providing the necessary working capital for the season *interest free*. CSA farmers also gain a great deal of financial security "by selling directly to members who have provided the farmer with working capital in advance", and therefore know what their income is prior to the season (Oberholtzer 2004). Finally, by being in debt to their members rather than a financial institution, the farmer can experience a difficult season and remain debt free, though member retention could be a challenge. This working relationship with members relieves the farmer from dependence on financial markets and government programs, providing the farmer with the opportunity to gain further autonomy.

Evidence from the interviews and surveys overwhelmingly revealed the important role of CSA in providing farms with the necessary working capital. Farmers discussed how the up-front payments are "a big help" (UPG), while

others noted, “the cash flow makes it possible for us to be viable” (RFF). An impressive 94% of farmers said CSA assisted in financing the farming operation. Many farmers noted how the financial arrangement had large implications for the farm, with a younger farmer noting: “I’d have to take out a large loan to pay for everything” (DNG) without CSA. Despite the financial support from members prior to the growing season, two farmers continued to take out operating loans. One of these farmers did mention “since we started the CSA we haven’t had to do that as much” (ITF). For the farmers in the study area CSA greatly reduced farm reliance on loans, which may bolster farm profitability. These up-front payments are providing the farmers with the financial security and peace of mind necessary to carry on farming by circumnavigating financial institutions and appealing directly to the community. Additionally, this initial support by the community makes “CSA seem like a great model for people who are just getting started and don’t have much capital yet” (ITF) and therefore may reduce barriers to entry into farming.

### 2.1.3. Reliable and Adequate Income

*Farming is labor of love. You never ever make the amount of hours that you put into it.*

-NP

The United States has provided major financial support to its farmers through farm bill legislation for over 80 years. In order to keep producers in the agriculture business, the government felt compelled to act to “redistribute income” to the struggling farmers (Peterson 2009). The justification that farm households tend to be less well off than non-farm households held true until recently. From 1990-2012 however, average farm household income has always been equal to or greater than non-farm household income. In fact, in 2012 average farm household income, \$108,844, was 53% greater than the average U.S. household income; however, 80% of household income was earned off the farm. Since 1990, when CSA growth picked up, the data reveals that earned income from farming represents only 12% of *total household farm income*. Therefore, with on-farm income averaging only \$8,210 during this time period, well below the poverty line, farmer households must rely on off-farm income for their livelihoods (Weber 2012).

One of the most important aspects historically of household farm income has been government payments. These days, government support appears to primarily benefit mega-farms rather than keeping family farms out of poverty. In an analysis of government farm payments, Peterson discovered the average per-recipient support provided to large farms was \$132,293, yet the federal cap on subsidy payments was \$50,000 per year (Peterson 2009). Additionally, the 2008 Farm Bill provided no assistance to three fifths of all farmers while it paid the top 5% of recipients an average of \$710,150 annually, primarily directed at commodity crops (Imhoff and Kirschenmann 2012). These massive government payments are a critical aspect of farm income for recipients, resulting in a tilted playing field and greatly distorting farm income statistics. As discussed above, earned income from farming is far below national income averages, perhaps resulting in farmers seeking alternative farm arrangements to make farming an economically sustainable occupation.

A core principle of early advocates of CSA was to provide farmers with a living wage. In addition to striving for a living wage, the nature of CSA provides farmers with a solid understanding of their income for the upcoming season. Previous studies have provided mixed results on CSA farmer income. Lass et al. found CSA farmers are almost twice as likely to have gross *farm* incomes exceeding \$20,000,<sup>9</sup> greatly reducing the reliance on off-farm employment as compared to the average (2003). Although CSA farmers rely less on off-farm income, 48% of farmers surveyed reported a lack of satisfaction with their compensation (ibid.). While data on CSA is limited, researchers at the USDA found that on average small and mid-sized farms engaged in local food sales farmed more hours and were more likely to forgo off-farm employment (Low and Vogel 2011). Yet Oberholzer found CSA farm income to be the main challenge for farm survival, though this is the primary challenge for farms of all forms (2004). In theory the farmer’s income is priced into the cost of the share, which is determined prior to production, thus ensuring the farmer a living wage; however, share price often does not include the cost of the farmer’s labor (Lass, Lavoie et al. 2005). These findings are fueling a growing concern amongst researchers that CSA, like most agriculture, fails to compensate farmers for their work (Tegtmeier and Duffy 2005).

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<sup>9</sup> A caveat: most U.S. farms are ‘residential’ farms that do not report farming as their main occupation. Frequently these farms are classified as farms to seek rents through subsidies while reducing their tax liability, and therefore reported farm income is not a fair representation of the average farm income for full-time farm operators that produce for a living.

These troubles were generally confirmed within the study area. With 81% of farmers responding that their full-time farming activities were not producing a living wage, income needs were clearly not being met. One of the three farmers that perceived their compensation as adequate stressed that this was only because of “this great place that my father had started. It was such an amazing opportunity to have all the tools, and the land” (UPG). For the majority of farmers struggling to make ends meet, one interviewee summarized it well in their response to the notion of earning a living wage by stating, “Farming? I don’t make a wage. 0 dollars” (MSG). Another farmer reported that after keeping meticulous track of all farm expenses the farmer “made \$2.24 an hour” (NP). A living wage? Hardly.

The survey provided detailed results on farm income. While gross farm income averaged \$85,346, net farm income was a measly \$12,044. Certainly that can’t result in a living wage, but it is vital to understand CSA statistics through comparisons with other farms. Although farm income in the study area was by no means adequate, these CSA farmers earned an average of 377.5% more on the farm than the national average (USDA 2014). Additionally, median farm income of CSA farms interviewed was \$1,280 above that reported by the USDA<sup>10</sup> (ibid.). The data from this and previous studies indicate that operating a CSA may indeed assist farmers in earning a greater farm income. However, on average income earned on the farm is far from providing a living wage. In another small regional study, the inadequate income generated through CSA resulted in farm exit (Ostrom 2007).

Despite the significant income challenges they face, CSA farms continue to crop up across the nation, with no clear slowdown in sight. Income, although vital to survival, is only one aspect of the compensation and overall lifestyle that come with operating a CSA farm. One farmer shook off the low income, mentioning that people “wouldn’t be in this business if you just wanted to make money” (RFF). “My wage is my health insurance, my truck, the gas, clothes, and food. That’s my wage” (DNG). Another farmer discussed how “[m]oney is not very motivating to me. I do it because I want to be outside and work with people...As long as that’s there and I can eat and live here, I don’t care what I get paid” (SSP). Other non-monetary forms of compensation included autonomy on the farm, seeing their labor come to fruition, the opportunity to work the land, the unlimited supply of healthy food during the season, joy received from feeding the community and loved ones, and the rewards of educating future farmers. Beyond the non-monetary compensation, farmers also received a guaranteed market for their produce, and thus a guaranteed income stream. CSA farmers noted that they had a fair idea of what their income would be for the season ahead, providing them with some degree of security and the ability to plan accordingly. This was only true for the CSA portion of the farm, and since 88% of farms in the study area sold produce outside the CSA, significant income uncertainty remained. The non-monetary aspect of farmer compensation appears to be a critical reason for entry and continuation for CSA farmers; however this is not a viable, or fair, trajectory. Farmers deserve to be fairly compensated for their work and to receive a living wage for providing food for the community. Without re-assessing and finding a way to meet the basic income requirements for farmers, CSA may be limited in its potential impact on the broader economy.

#### 2.1.4. Risk Hedging

*[T]he original idea is that the customer is sharing the risk...But in our case the customers [are] sharing the risk in terms of what they are going to get*

-SGF

Farming is inherently risky due to its reliance on weather and other conditions outside the farmers' control such as pests, diseases, and volatility in food prices. To improve rural livelihoods and provide farmers with the ability to face risks associated with agriculture, the United States government introduced the Agricultural Adjustment Act (AAA) of 1933. This legislation, part of the New Deal, represented the start of large-scale government support to agriculture, initially through activities to raise food prices, and therefore farm income. The AAA was instrumental in its support to farmers and was partially responsible for the 50% increase in farm incomes from 1932-1935 (Rasmussen 1976). Despite the progressive beginnings of the AAA, ample research has shown that farm legislation after the depression has provided support to large commodity farmers while actively pushing small and mid-sized family farmers off the land (Ritchie and Ristau 1986). Researchers have continuously shown that government payments to hedge risk for farmers are unfailingly linked to increased farm sizes due to their disproportionate

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<sup>10</sup> A note on the comparison: Defining a farm is a challenging task. For the above results farms in the study area are compared to farms in the 2012 USDA Census whom are classified as principal farm operator – intermediate farms. This means the farmer’s primary job is farming and the farm earns less than \$350,000 in gross cash farm income. This category was chosen for comparison because all farms in the study area for which data exists fit into this category. This leaves out residence farms which are farms with a principle operator who is retired or has another primary occupation and receives less than \$350,000 in gross cash farm income and commercial farms where the gross cash farm income is over \$350,000.

benefits to large scale farming (Williams-Derry and Cook 2000, Key and Roberts 2006). A great deal of the disproportionate support to large-scale monocultures through crop insurance and other government supported risk-hedging strategies stems from the lack of applicability to small and midsized highly diversified farms.<sup>11</sup> Farms engaging in CSA do not have the ability to hedge risk through traditional mechanisms due to their adherence to agro-ecological growing practices, and therefore must seek alternative avenues to hedge their risk.

Rather than relying on government support to provide insurance and other risk-hedging strategies, CSA farmers rely on crop diversification and membership. Most studies of CSA recognize “an important aspect of CSA is that both the farmer and the CSA member share the risks associated with farming” (Cooley and Lass 1998). According to the USDA, CSA farms share, or sell off, a portion of their risk to their members, therefore the farm is provided with a risk-hedging strategy for the season. Additional studies have supported the idea that many CSA farms incorporate risk sharing (DeMuth 1993, Lamb 1994, Groh and McFadden 1997, Lass, Lavoie et al. 2005). One study of CSA participants found members overwhelmingly understand the concept of risk associated with CSA and were comfortable with said risk (Oberholtzer 2004). On the other hand, DeLind claims that the idea of shared risk has been all but eliminated from CSA, which has transformed into a simple form of commerce rather than a true social movement (DeLind 2011). DeLind continues, arguing that CSA is nothing more than a simple marketing ploy, having compromised the values of the earlier CSA initiatives through expansion to a broader consumer base (ibid.). Whether or not the risk sharing built into CSA is true for many farms, a large part of the variation in findings can be attributed to the broad umbrella that CSA farms operate under. While CSA farms that rely on selling shares for most of their revenue and adhere more to the original ideas laid out by early participants appear to engage in some level of risk sharing, farms that seem to rely on the CSA as simply a marketing ploy appear to be less willing to place the burden of crop failure on the members. Nevertheless, no studies have indicated that members and the broader community actually engage in risk sharing for the farm itself, rather the shared risk, if it occurs, is only for the season and not the farm.

Within the study area questions about sharing the risk of the *season* between farmers and members produced a wide range of responses, indicating significant variation exists between CSA farms. One farmer explained, “the way we work, we [farmers] bear the risk” (CHF). The farmer was not comfortable putting the risk on the member and felt obliged to provide for members. Another explained, “when people sign up we tell them that they are assuming the risk” (ESF), which provides essential support for the season. In general, more than two thirds of farmers believed they shared risk with members, but none viewed the members as taking all the risk. As one farmer put it, “we split it [the risk] about 50-50 and they are told up front that if there’s a crop failure that they take the risk as well as the farmer.” The risk sharing may have been important to some farmers, but none believed the risk of *the farm* was shared with the members, rather that lay squarely on the farmers' shoulders.

Although the idea of sharing the risk of the season may provide members with a sense of satisfaction through supporting of the community farm by providing a needed form of insurance, how does this play out in reality? One farmer discussed how “we’ve definitely put that [risk sharing] to the test.” It is “easy for people to agree to it in theory...but it was really put to the test three years ago now. Hurricane Irene came though and pretty much obliterated everything we had. I mean our entire crop field was under water.” The farmer, knowing they were in a floodplain and aware of the impending storm, discussed how they “put the word out to members and tons of people showed up and helped us do this mass harvest of everything we could possibly get out of the field.” Once the storm hit, the fields were lost for the season, putting the member-farmer relationship to the test. In response to the disaster, the farm “accepted donations from other farms,” showing the strength of the local farm community during crisis. The true challenge lay ahead as the farmer was unsure if members would stick by the farm and understand that disasters such as these were part of farming. CSA members, after all, are supposed to share in the risks and rewards of farming. The farmer discussed how “it was interesting....absolutely everyone was very understanding.” However, the flood certainly stirred some hesitation amongst members, as “that next year we actually had our biggest drop in membership.” But, “that said, there’s so many people that have really been steadfast.” Despite the disaster, the farm quickly recovered and was back to full membership within one year. Although this provided a great example of how

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<sup>11</sup> Government insurance and subsidy programs primarily apply to monocultures growing commodity crops. For non-commodity growers, such as CSA farms, the government offers a program called the non-insured assistance program (NAP). This program does not appeal to CSA farms due to its structure. The program is for individual crops, so a farmer with 30 crops may need 30 different insurance policies. Additionally payments are only considered after 50% of the crop is lost. Once 50% is lost, NAP covers 55% of the market price for the second 50% of the crop. Additionally the USDA is only starting to cover Organic prices, though this current applies to only a handful of crops.

CSA supports farmers that don't have other risk-hedging mechanisms, the farmer expressed some frustration, stating, "I mean it's great on the one hand, and on the other I don't always want to have our hand out to the community" (NRF). This example may not be generalizable however, as it was one of the few farms in the study that relied almost exclusively on the CSA to sell its products. The farm adhered much closer to the original CSA idea than others, perhaps resulting in a stronger community bond. Other farms that experience disaster may be less willing to place the burden on members for fear of losing their customer base. This is observed in the study, with over 30% of farms reporting they buy in produce during crop loss in order to supplement the share. Although the shared risk of the season may provide a short-term insurance policy, it could spell disaster for the farm since members can move to another farm next season.

Other forms of risk management are crucial to CSA's viability. Rather than relying on a small handful of crops, CSA farmers rely on crop diversity to minimize the risk of the farm when a particular crop may fail. Farmers in the study grew an average of 38 different crops and an astonishing 115 varieties. As one farmer explained, "[w]e hedge our bets by diversifying" (UPG). This diversification not only reduces the impact, for instance, of a blight that kills all the tomatoes, but also has tremendous environmental benefits that will be discussed below. This crop diversity allows farmers to give members "a general list of crops" they may receive during the season. But they make it clear that "there's no guarantee that you're going to get any one of those crops because they [members] have to account for crop failure" (DGB). On the other hand, two farmers discussed that having such a high level of diversity on the farm "makes it very difficult" (ITF). The farmers expressed that they feel pressure to deliver at least a taste of all the crops to their members. Additionally protection is provided because, as one farmer noted, "our main goal is to produce the highest quality food that we can here. But there are a lot of instances where there may be cosmetic imperfections that don't really bother me because I know that it doesn't really bother my customers" (NRF). What may be a crop failure for farms selling into grocery stores can still result in a successful crop for CSA farms. Finally, this high level of diversification allows farmers to have long-term crop rotation patterns, which reduces the risk of crop failure through mechanisms such as greatly reducing insect problems by interrupting their reproductive cycles and reducing parasitic nematodes, weeds, disease carried by bacteria viruses, and fungi (Magdoff and Van Es 2000). Although this high level of diversity is by no means unique to CSA, the structure of CSA may greatly reduce the transaction cost associated with harvest and sale for farmers that engage in high-diversity agriculture. Similar to monocultures who sell to a single buyer, at the beginning of the season CSA farms already know where their crops are going and how much they will sell for. Diversified farms also don't have to negotiate a price for each crop, potentially with multiple buyers and many times throughout the season.

Unlike many farms in the United States, crop insurance policies are not structured in a way that applies to CSA farms. Because these programs only provide insurance for commodity crops they disproportionately benefit large-scale monocultures (Key and Roberts 2006), and most of the bill is actually paid for by the taxpayer. In fact, under the 2008 Farm Bill, the taxpayers paid 60% of crop insurance premiums (Shields 2009), greatly reducing the cost of the insurance to farmers. This uneven playing field puts diversified farmers that grow non-commodity crops at a great disadvantage. As discussed above, CSA is providing a new option to these farmers that may help them weather hard times, as current policies leave them out to dry. This was confirmed throughout the study area as no CSA was covered by crop insurance. Interestingly, 55% of farmers reported they would be interested in a risk-hedging program, such as crop insurance, *if* an appropriate program existed. One farmer discussed their frustration, claiming "[a]s far as crop insurance goes, it's a real problem for the CSA model because I grow close to 30 different vegetables and on two-and-a-half to three acres" (MSG). It was clear that crop insurance programs were "really not designed for farms like ours" (RFF). In turn, farmers stressed that "[t]he CSA really is the insurance" (RFF). While CSA may provide some risk management for the season it doesn't seem to be sustainable, as over half the farmers indicated they "would be interested in it if there was something that would give us reasonable insurance" (RFF).

There are currently no viable crop insurance programs for the type of farmer that offers a CSA. This institutional bias for large-scale monocultures growing commodity crops must be addressed to level the playing field. Recognizing this as a growing problem, the 2014 Farm Bill authorized the USDA to develop a new insurance program called Whole Farm Revenue Risk Management (NSAC 2014). Whole farm insurance has the potential to greatly improve the viability of diverse farms, however details on the program are not yet available. Understanding the value of crops produced on a CSA will present great challenges, however, as crop insurance does not value the produce at the same price as the community. This was clearly articulated in two studies, finding those participating in direct purchases from farmers have clear preference for local produce, such as that procured through CSA, and are willing to pay an additional 50%-150% (Farnsworth, Thompson et al. 1996, Darby, Batte et al. 2008).

Within the study group, 73% of farmers reported that the risk of the season is shared with members; however, unlike the USDA definition and many early advocates of the CSA model (DeMuth 1993), no farmer thought the community shared in the risk of the farm as a whole. The CSA model has proven to be very playable, therefore there is no clear answer to how or to what extent CSA provides risk-hedging mechanisms for the season. What is clear is that depending on how CSA is structured on a particular farm, it can provide the farm with a valuable way to reduce risk. Risk reduction may occur through shared risk of the season, diversification on the farm, or perhaps by providing the farmer with outlets for produce that may not be marketable otherwise. On the other hand, farmers acknowledged that relying on members to hedge risk help the farm for the season, but could result in significant issues with member retention that could jeopardize the entire farm.

### 2.1.5. Farm Workers and the Next Generation of Farmers

*Farming looks mighty easy when your plow is a pencil and you're a thousand miles from the cornfield.*

-Dwight D. Eisenhower

Historically farming has been one of the primary occupations in the United States, providing livelihoods from coast to coast. When the Agricultural Adjustment Act was passed in 1933 to support farmers during the depression, over 20% of Americans made a living working the land. Due to industrialization and economic development in the U.S. the farming population began disappearing, falling from 58% of the labor force in 1860, to 21% in 1930, to 12.2% in 1950, to 3.4% in the 1980s (Spielmaker). Today less than 1% of the U.S. work force reports agriculture as their primary occupation (USDA 2014). In conjunction with this dramatic reduction in number of farmers, the average age of U.S. farmers has steadily risen. Currently the average farmer is 58.3 years old and only 6% of head farmers are under the age of 35 (2012 census). As farmers continue to substitute land and capital for labor, employment generated for both farmers and farm laborers further deteriorates (Low and Vogel 2011). The local food movement may provide some hope; farms rooted in local food networks disproportionately engage in labor intensive farm production, providing over 40% more full-time-equivalent farming jobs per farm than the average farm (ibid.).

With an aging farming population and continued outmigration from farming communities (O'Donoghue 2011) the question arises, who will be our future farmers? While the adoption of capital and land intensive technologies and has drastically reduced the need for farmers, research suggests a shift to sustainable farming methods would require a major increase in farmers (Netting 1993). Realizing the challenges the U.S. faces due to its aging farm population, the USDA has attempted to provide support to new farmers through the Beginning Farmer and Rancher Development Program (BFRDP). The program is funded through the Agriculture Act of 2014 and provides \$20 million a year to train and support new farmers (Williamson 2014). The program has been funded since 2008, and engages in government and community based education services, offers loans and financial resources, and provides program evaluations. Despite these efforts, the number of young farmers continues to decline.

Traditionally, a patriarchal intergenerational transfer of knowledge and farmland dominated the United States agricultural sector, however this system has clearly deteriorated (Runyon 2013). As recent generations lack the land and capital to enter farming in addition to the low median wage, they continue to seek alternative employment outside of agriculture. For those seeking to farm without a farming background the barriers to entry are high (Williamson 2014). However, CSA may provide opportunities to those interested in pursuing alternative farming through apprenticeship programs to provide knowledge, working capital in advance thus limiting capital requirements, potential improved access to land, limited requirements of land through intensive methods, community support, and access to a guaranteed market.

CSA farmers practice highly diversified labor-intensive agriculture, utilizing an array of labor sources to meet the labor needs in a cost effective way. Sources of labor include family members, apprentices, members, and wage laborers. Oberholtzer hypothesized that farmers, citing financial challenges to meet their labor needs, rely on large amounts of member labor to meet the farm's needs (2004). While member labor represented a significant labor source for many early CSAs (Lass, Bevis et al. 2003), it no longer appears to be a significant aspect of many CSA farms, as structural changes have occurred to appeal to a broader audience (DeLind 2011). In the study area only two farms asked members to contribute labor and the requirements were only a few hours a season. Without members as a labor source, farmers must rely more heavily on other sources of labor, increasing overall costs.

The use of apprentices on the farm as a source of labor proved to be a controversial topic amongst farmers. Apprenticeships were labor in exchange for subsistence and an education. Young and new farmers typically received a stipend, often including room and board, and an education in return for their labor. On the one hand, some farmers thought apprenticeships were mutually beneficial, offering an affordable form of labor in return for a valuable educational opportunity, while others viewed the apprenticeships as largely exploitative. To explore the importance of apprenticeships in developing the skill set of future CSA farmers, interviewees were asked how they had acquired their skills. Two thirds of farmers reported engaging in apprenticeships on CSA farms prior to starting their own. One farmer praised his time as an apprentice, saying, “I learned almost everything that I know, or needed to know...as an apprentice” (SSP). Another farmer stressed the importance of these opportunities, noting, “as we lose family farms we lose the skills and know how. Going to school to learn how to farm is not the same. They don’t teach you how to do anything on the ground” (MSG). Another farmer was passionate about “using this farm as an opportunity for people to learn skills related to CSA and related to farming so that they can go off and start their own projects” (ESF).

While apprenticeships may provide valuable labor for some farms, only 44% of CSAs in the study offered apprenticeships. Two farms expressed interest in starting an apprenticeship program in the future as the farm expanded operations. Compensation for apprentices varied, ranging from \$500 a month plus housing to \$1,200 a month without housing. In most instances apprentices were provided with unlimited food from the farm, though this may not be comparable across farms, as some farms produced non-vegetable goods on the farm that apprentices were provided such as meat and eggs. Despite these benefits, one farmer discussed how the “hourly [pay] is not what it should be” (DGB). To provide apprentices with additional valuable learning opportunities, regional farms have a “collaborative program for the apprentices...so we allow our apprentices time off from work each time those meetings happen and I do teach a workshop ever year” (RFF). This program provides apprentices with a supportive community where they engage in educational activities. Another farmer mentioned how they’ve “been working with rubrics and evaluation criteria” so the farmer can “say here’s what it looks like to be really effective on the farm” (SSP). These apprenticeships can, under the right leadership, provide an important labor source on the farm while granting the apprentice a valuable educational opportunity.

On the other hand, two farms in the study area opposed the use of apprentices. Two farmers felt strongly about what they deemed “abuse” of interns in the CSA model. One interviewee discussed how the farm “doesn’t want interns because they don’t get paid well,” rather everyone should “get a good paycheck” (ESF). This argument came from a particularly successful farm that was able to pay all employees a base salary of \$11.50, far above the agricultural minimum wage of \$1.63 or the minimum wage of \$8.00 in the region (MassGov). Despite showing frustration with traditional apprentice arrangements, the farmer was passionate about making “opportunities for young people” and “recognize[d] the need for education” (ESF). The other farmer opposed to the apprenticeships claimed, “if you’re going to work hard, you deserve to get paid” (UPG).

The jury is still out. Are CSA apprenticeships providing a worthy educational experience, or an exploitative feudal system? If farmers often seek out apprentice labor because they can’t afford the wage bill, why don’t farmers just raise the price of their shares to reflect a living wage for employees? After all, a previous study found CSA shares were cheaper than procuring the same produce at local, regional, and national conventional chains and regional organic chains (Cooley and Lass 1998); however, farmers explained they couldn’t raise prices anymore, as many of them were still trying to grow their CSA customer base and they faced competition from other CSA farms in the region. As farmers attempted to remain competitive, they frequently found themselves struggling to pay their workers a decent wage. One farmer noted, “all the people on staff deserve to make a lot more money than we are giving” (NLF). Although farm viability is critical, CSA farmers must work to ensure fair pay and compensation to their workers. To support agricultural laborers and harness consumer support, organizations such the Agricultural Justice Project and the Domestic Fair Trade Association have generated certifications to label agricultural goods produced by farms meeting certain labor standards. While, this may be a step in the right direction, none of the farms in our study area were participating and fair compensation for the farmer and laborer alike is not being achieved at this time.

## **2.2. Equitable Access to Food and Farm**

*Everyone should be able to get the highest quality produce always and we need to figure out as a society how to make that happen.*

-MSG

Italy is home of the Slow Food Movement, which has been spreading throughout Europe. In the Developing world, there are peasant organizations such as La Via Campesina fighting for Food Sovereignty (FS). In the United States, there is the local food movement. What do these movements have in common? They are all food and agriculture movements fighting for alternatives to the industrial farm system and its economic, ecological, social, and health consequences. Access to fresh, healthy, and culturally appropriate food is central to some (FS), while improved food access has recently been incorporated into others (CSA). Recent efforts in the United States have attempted to posit the local food movement, and in particular the farmers' market and CSA, as a mutually beneficial system for farmers and low-income consumers alike (Guthman 2007). While evaluating access to food is imperative on the distribution side, access to farming itself is also critical to building an equitable food and farming system.

The United States has consistently followed a cheap food policy through agricultural legislation, but has this led to improved food security and health outcomes (Tillotson 2003)? Not all food is created equal. While the U.S. may provide dietary guidelines for a balanced diet through My Plate, a quick review of agricultural subsidies reveals the government's funding is far from in line with their dietary recommendations. 50% of the American diet is supposed to consist of fruits and vegetables, but what portion of subsidies do these food groups receive? Fresh fruit and vegetable producers receive just *1% of total subsidies*; the remainder go to commodity crops such as corn and soybeans, contributing greatly to the rise of processed foods while marginalizing healthy alternatives (Moss 2013). The U.S. cheap food initiative has driven down average household expenditure on food in the U.S. to the global low of 6% (Gates 2012), compared to 60-80% for many poor in developing countries (Mitchell 2008); yet at least 17.5 million (14.3%) U.S. *households* are food insecure, 6.8 million (5.6%) of which had *very low food security* (Coleman-Jensen 2014). Households with children and those headed by single parents, especially women, are disproportionately food insecure despite public assistance programs. This seems at odds with the current cheap food policy; however, rampant inequality and unemployment coupled with limited access to healthy foods (e.g. food deserts) has resulted in poor access to food nutrition.

Food is a fundamental human right. Much of the discourse regarding feeding the poor, particularly in the developing world, is centered on the notion that the world must increase food production; but across the developing and the developed world, food security is a distributional problem (Patel 2013). The United States has engaged in food and nutrition assistance programs such as the national school lunch program, school breakfast program, supplemental nutrition assistance program (SNAP), and the special supplemental nutrition program for women, infants, and children (WIC). Realizing the persistence of food insecurity in the United States, owners and managers of farmers' markets and CSA farms have expressed interest in engaging with low-income consumers and improving food security (Guthman, Morris et al. 2006).

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Previous research reveals many CSA farms offer programs to increase access and food security for low-income consumers, with 56% of CSAs offering some form of low-income program (Lass, Bevis et al. 2003); though the efficacy of these programs is questionable (Guthman, Morris et al. 2006). Cooley and Lass find produce obtained through CSA shares is cheaper than procuring the produce elsewhere (1998); however this doesn't translate into affordability, as buying large quantities of produce may be financially out of reach despite the potential savings through CSA. While one CSA member survey found 81% of members changed their eating habits, eating more produce and/or a greater variety, another found that members spent 43% more money per week on produce than non-members (Perez 2003, Curtis 2011). These results indicate that although the CSA may provide produce that is cheaper and more abundant, the produce may remain out of reach for low-income members who can't afford the additional increase in food expenditures.

Farmers in the study area expressed general interest to work with the community on the issue of food access. Despite farm interest in issues regarding access to food, 73% reported they didn't believe CSA was affordable for low-income members. Farmers repeatedly reported feeling stuck between two poles: on the one hand they felt their "share needs to be more expensive" in order for them to make a living, but on the other farmers generally agreed "there is no access for low-income people" (MSG). In an attempt to reach those less able in the community, over 70% of the farms offered some form of low-income program(s), however they were found to be small, underutilized, and not advertised.

The most common program was a sliding scale (25% of farms), where for instance rather than a flat share price of \$625 the price would be \$550-\$700. In these instances, farmers asked members to pay more if they were able, which in turn helps subsidize other families that have the option to pay at the lower end of the scale. This form of community redistribution proved appealing to farmers, with one noting the program made "it possible for people who really had the means to pay to pay more and people who didn't to not feel excluded" (JWB). Other low-income programs included:

- Elderly shares – senior citizens receive a share discounts if needed. The program was made possible through financial support by Communities Involved in Sustaining Agriculture.
- Payment plans<sup>12</sup> – low-income members had the ability to pay in installments. These ranged from weekly payments to three payments across the season. Some farms also accepted EBT payments.
- Work shares – members were offered the option to work off a portion, or the entirety, of their share.
- Scholarships – farms engaged in fund raising to subsidize shares.
- Interest-free loans – farmers worked with a local credit union to provide interest-free loans to members without the ability to pay the share price up-front.

Other farms sought to reach low-income members by reaching outside the CSA. One farm was very proud of its Mobile Market Program, where the farm converted a school bus into a produce delivery system that traveled to underserved communities. Since "[a] lot of Springfield has been designated a food desert by the USDA, it's a way for us to get fresh organic produce to people who normally can't find a place to buy it close to their homes. We are also able to offer the produce to those people at a reduced price" (ESF). Other farms were able to improve access by "donat[ing] a lot of the leftovers from CSA sites to food pantries" (RFF) or allowing the community to participating in gleanings, where the crop was about to be plowed under and people could come pick as much as they desired. While these initiatives may improve food access in their communities, they are highly location specific. This presents a clear problem, as CSAs are generally located in counties with significantly higher educational attainment, income, and less racial diversity (Schnell 2007).

These programs offered by CSA farmers to low-income members are certainly a step in the right direction, but the primary mechanism to improving food security within the local food system appears to be through public food assistance programs (Guthman, Morris et al. 2006). The government has rolled out programs for instance to double SNAP (EBT) benefits at some farmers' markets, and have ongoing trials to allow farmers access to EBT payments 14 days in advance. Government support for such programs is critical, as the burden of providing food security and fresh healthy produce cannot be shouldered by farmers who are themselves struggling to make a living. As Guthman argued, "[a]s a rule, farm security trumps food security... When consumers are affluent, CSAs and farmers' markets may truly be 'win-win'" (ibid.). In addition to the challenges of affordability and location of the CSA for low-income members, additional barriers to participation exist. Guthman finds CSAs and other local food entities rely on "discourses that reflect whitened cultural histories," thus attempts by these farmers and related institutions often overlook the needs and priorities of the low-income communities they try to serve (2008).

Beyond addressing issues regarding access to food, the local food movement, and CSAs in particular, may disregard traditional gender roles by providing a specific form of farming that's appealing to women farmers. Women have historically been drastically underrepresented as farmers. The discourse has focused on men as 'farmers' while the women are the 'farmwives' (Shortall 1992). Women's work in agriculture tends to be ignored by researchers in the United States, yet their contributions on the farm have been vital to farm and household success. In the United

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<sup>12</sup> Farmers offering payment plans did not find it affected the farm's operation through reduction in working capital. Farmers did however discuss how the payment plans represented a very small percentage of the shares offered, and could pose a significant risk to CSA if adoption occurred for a significant portion of shares sold.

States, farm and farmland have historically been passed down from father to son, bypassing women and continuing the cycle of patriarchy. Recent data indicates women may have increased their role as farmers, with women only representing 6.3% of farmers in 1987, while today women account for 15% of farmers (USDA 2014). While the percentage of women farmers more than doubled over the past 25 years, 91% of them had annual farm revenue of \$50,000 or less, far above the U.S. average of 75.6%. Additionally, women farmers are exiting farming at a much faster rate than men, contributing to the uncertain role of women in the future of U.S. agriculture (ibid.).

Despite these persistent gender inequalities, sustainable agricultural models may provide a silver lining. Trauger finds women throughout the West are three times more likely to be the head farmers practicing sustainable agriculture as compared to conventional farms (2004). “The sustainable agriculture community provides spaces that promote and are compatible with women’s identities as farmers” (ibid.). Although data is sparse, previous studies of CSA farms have indicated that women play a much larger role as farmers as compared to the U.S. averages. Lass et al. found that amongst CSA farms, women were four times more likely to be head farmer as compared to the U.S. average (2003), representing 34% of head farmers, and 64% of secondary farmers. What was perhaps more surprising was women’s major participation as the third farmer, representing 60% of this group (ibid.). While women were much more likely to be farmers, they were still underrepresented as head farmer, pointing to the existence of continued inequalities. Regarding the study area, the survey findings obtained after the interviews provided statistics on the 28 farmers involved in the CSA operations. Women represented 45% of all farmers reported; however, they were underrepresented as primary farmers (27%). The findings corroborate earlier studies indicating women are more likely to be farmers in CSA (Galt, O’Sullivan et al. 2012), but the gender dynamics within CSA and U.S. agriculture in general remain largely unexplored. To understand why and where women may enter farming, there appears to be two separate issues that warrant further attention. First, there is the issue of access. As discussed above, individuals interested in farming who don’t receive valuable transfers of knowledge, farm, and equipment through intergenerational transfers face major barriers to entry. CSA may reduce these by limiting land and capital requirements for young and new farmers. On the other hand, women must be interested in farming in the first place. Trauger argues that while conventional agriculture has historically excluded women from the farm, sustainable agriculture provides “spaces of empowerment for women farmers” (2004). Rather than being identified as ‘farm wives’ in conventional agriculture spaces, sustainable agriculture spaces provide community engagement and recognition of women as valuable producers of knowledge, community, and food (ibid.).

CSA can’t be expected to revolutionize access to food and farm. However, understanding how CSA interacts with pressing food and farming issues is critical to evaluating its effectiveness as a viable alternative to business as usual. Previous research and interviews conducted for this study confirm CSA farmers’ interest in improving food security in their communities. Yet CSA remains inaccessible for many low-income consumers. Additionally, CSA may improve access for women farmers, while providing an alternative farming structure that is more appealing; however gender parity does not exist, as male farmers continue to disproportionately hold leadership roles. To truly address the deeply imbedded inequalities that result in unequal access to food and farm one must look far beyond the CSA itself. The government can and must do more to remedy issues of access. How? Perhaps a thought exercise is in order. What if the U.S. government supported agriculture the way the government recommends what we eat? This would entail a massive restricting of U.S. agriculture policy, as fruit and vegetable producers receive almost no government support, yet are supposed to be a major portion of the American diet. Surely this would lead to cheaper fruits and vegetables for Americans, resulting in improved access to healthy foods. In the least, the Union of Concerned Scientists argue the government could help Americans meet the recommended daily intake of fruits and vegetables though a mere investment of \$90 million, a drop in the bucket compared to the \$5.08 billion in subsidies corn and soybeans alone receive. CSA represents an exciting new opportunity to support sustainable agriculture, but they can’t be the solution to these challenges. For now, incremental changes will have to do.

### **2.3. Community Engagement**

*It’s about people...It’s about relationships that are more than just economic.*

-JWB

Globally people are waking up and realizing the current capitalist system is providing for the few rather than the many. But what alternatives, if any, are available? J.K. Gibson-Graham develop a vision of the “community economy” which provides an ethical and political space for “individuals and collective subjects [to] negotiate questions of livelihood and interdependence and (re)construct themselves in the process.” Beyond the theory, there

is the reality where people are “building community economies” (2006). During the 21<sup>st</sup> century social movements have harnessed the power of food and farming, making them an integral part of rebuilding community.

For some scholars, CSA is “a dynamic social interaction involving economic, social, environmental, and philosophical principles that challenge its participants to re-evaluate their community, their food system, and their role” (Kelvin 1994). CSA after all stands for *Community* Supported Agriculture. Yet this raises the question, is CSA truly reconnecting the community with their food, thus building deeper connections to the farmer and the land? Feenstra argues local food systems can have a tremendous hand in re-vitalizing and empowering communities (1997). These community-farmer ties can run deep within CSA, as farmers are able to gain an understanding of the communities needs and desires prior to planting, covering topics such as land management, crops to be grown, and financial limitations (Lamb 1994). To ensure community and farm were intertwined, most early farms adopting the CSA model developed a ‘core group’ of participants that would work with the farmer(s) to make important decisions. The core group’s function was to help realize that through the CSA, “the primary need is not for the farm to support the community, but rather for the community to support itself through farming” (Groh and McFadden 1997).

The degree of community engagement appears to be waning. While community involvement in the CSA was historically an integral aspect, many more recent studies have failed to corroborate the argument. In a study of 13 farms practicing the CSA model in the mid-Atlantic, Oberholzer found only three discussed the role of community involvement (2004). Additionally, two different member surveys reported community involvement, such as activities on the farm, was among the lowest rated reasons for member participation (ibid.; Cone 2000). In the only national study of CSA farms the results indicated a stronger relationship between the farmer and community, with 73.5% of CSAs offering community activities and 64% reporting that starting the CSA improved community involvement on the farm (Lass, Bevis et al. 2003).

The study area provided mixed results pertaining to community involvement with the farm. Only 40% of farmers reported community activities as part of their CSA, though many farmers discussed how the pick-ups themselves were an important community-building event. When members come to the farm it provides consumers the opportunity to “actually talk to the grower... We get to tell them a lot of personal things about the farm and they get to know us as people instead of a grocery store” (DNG). Thus for many farmers “It’s very rewarding having the direct connection” (UPG). Other farmers felt “the community is not really supporting [the farm], they’re buying the products” (DGB) though in this scenario the farmer made it clear they offered shares only for the economic benefit of capital upfront and a guaranteed market.

While members may interact with the farmers during their weekly pick-ups, many farms discussed how the community events they organized “strengthen community, not just the food side” (ITF). Events farmers organized included harvest festivals, raspberry and strawberry festivals, potlucks, community workdays, and others. While these events were important to many farmers, others explained how “we aren’t sure it works for us. It’s a lot of logistical work to set up events” (ESF). Although the events were time consuming, cutting into farmer’s precious time during the season, some farmers felt farm events were an integral part of the CSA.

While discussing bridging relations between the farm and community some farmers discussed the important role of their u-pick gardens. On the four farms in the study area that provided u-pick opportunities to their members, the farms devoted a section of their land to certain crops, but rather than the farmers harvesting these crops they were left for the members to gather. For these farms, the u-pick offered a win-win solution. Members received additional produce in their weekly pick-up *if* they were willing to spend the time, offering them an opportunity to experience a bit of farm work first hand and often functioning as a fantastic way to engage children. On the other hand, farmers had a variety of reasons for providing a u-pick garden to members, ranging from community building and helping members reconnect to the land to the simple fact that crops chosen for u-pick are extremely labor intensive to pick and by providing members the opportunity to pick these crops the farm would save a great deal. Crops typically found in the u-pick gardens include: sweet and hot peppers, multiple varieties of beans, cherry tomatoes, husk cherries, tomatillos, strawberries, herbs, flowers, etc.

(Re)building communities is priceless, but as is common today, things that don’t have a calculable market value are often excluded from the process of economic decision-making. Community Supported Agriculture can’t be expected to restructure community relations in an era of low social capital, in which neighbors rarely are willing to go next

door when they run out of sugar. What agriculture can do is provide a space for members to come together and bond over a common interest in a vital daily necessity – our food. Although the community linkages in the study area were not as robust as the early literature would lead one to expect, perhaps denoting a shift away from the C in CSA, there exists strong potential for CSA and local food systems to promote community engagement through reconnecting farm, food, and community.

## 2.4. Environment

*There is a fundamental tension between the ‘efficiency’ promoted by markets and a broader notion of efficiency, founded on long-term human well-being, that (i) encompasses externalities, both positive and negative and (ii) puts the welfare of future generations on a par with present-day welfare rather than discounting it towards zero.*

-James K. Boyce, 2004

The industrial agricultural system is an environmental catastrophe. According to reports released by the Consultative Group on International Agricultural Research (CGIAR) agriculture was responsible for up to one third of global greenhouse gas emissions (GHG) in 2012 (Beddington, Asaduzzaman et al. 2012). Additionally, agriculture is responsible for 56% of non-CO2 global GHG emissions. A staggering 80-86%, or 12,000 megatons of carbon dioxide equivalent, of agricultural emissions are generated through the production process each year, leaving a great deal of space for improvement (ibid.). Continuing with business as usual under the industrial agriculture system will quickly deplete the world’s finite resources. According to Tegtmeier and Duffy (2004), the annual external costs of US agricultural production is estimated to be between \$5.7 and \$16.9 billion (2002 dollars). The system is consuming fossil fuels, water, topsoil, and plant germplasm at an appalling rate (Horrihan, Lawrence et al. 2002). In fact, the UK Department of the Environment conducted a study in the 1990’s, finding that new crop varieties developed for industrial agriculture lasted a mere five years in the field before pests and disease ravaged the varieties, rendering them obsolete (Swanson and Luxmoore 1997). In addition to varieties being rendered obsolete due to methods of production, Rangnekar (2000) shows that agribusiness intentionally engages in planned obsolescence of varieties to improve profits and ensure farmer reliance on the firm. The fault of these environmental challenges does not lie within agriculture itself; rather it is the path societies have chosen – the production methods used – that have resulted in these damning environmental outcomes (Vermeulen, Aggarwal et al. 2012).

Alternatives are possible. The industrial agricultural system must be uprooted and replaced by diversified farming systems (DFS), which promote equity by balancing concerns such as environmental sustainability, economic inclusiveness and viability, social justice, community success, and the well-being of future generations (Allen and Sachs 1991). The seeds of these alternatives are slowly gaining traction (Kloppenburger, Lezberg et al. 2000, Kremen, Iles et al. 2012). They can be found in organic, biodynamic, agro-ecological, perennial, permaculture and other forms of production based on alternative agri-food networks (AAFNs) (ibid.). AAFNs offer an alternative “against the logic of bulk [high volume, low cost] commodity production, alternative food networks redistribute value through the food chain, reconvene ‘trust’ between producers and consumers, and articulate new forms of political association and market governance” (Holloway and Kneafsey 2004). These forms of agriculture have the potential to provide ecosystem services rather than destruction (UCS 2014). To support DFS, farmers and consumers alike have transitioned to CSA as one potentially viable way forward. For the early pioneers in CSA, environmental concerns were paramount (Groh and McFadden 1997). In the 2001 national survey of CSA farmers, 96% of respondents reported to practice organic and/or biodynamic practices, providing ample evidence to support the claim that “virtually all CSA farms surveyed practiced some form of sustainable or environmentally friendly production” (Lass, Bevis et al. 2003). Engaging in sustainable farming practices requires deep knowledge of production practices coupled with local agro-ecology. While farmers need this in depth knowledge to farm sustainably, consumers looking to eat sustainably may not have the time, interest, or available information to make informed decisions. To ease this burden on consumers, countries like the United States engage in legislative activities to regulate and certify what they deem to be sustainable through the Organic Certification program.

A mere 12 years after the USDA’s Certified Organic program took effect the business is booming. With organic sales reaching \$35 billion in the U.S. during 2013 and growing, farmers and consumers alike are paying attention (USDA 2014). But what does the organic label actually represent? When consumers walk into the grocery store, they are inundated with products. According to the Food Marketing Institute, the average grocery store stocks an astounding 43,844 products (FMI). With so many options, consumers can become confused with various claims made by manufacturers such as “natural”, “all natural”, “GMO free” and “free-range” (Walsh and Yamin 2005). To

ease the burden of choice, the Certified Organic label provides a clear stamp of approval, easing consumer concerns about the health and environmental impacts of their daily food choices.

Through the conventionalization of organic, organic produce is increasingly produced on large-scale monoculture farms by multi-national corporations (Guthman 2004). In fact, organic farms tend to be larger, more likely to be corporate owned, and have increasingly lobbied congress to change organic legislation to allow a broader range of chemicals to be applied. Prior to the organic labeling, Adams and Salois find organic food was linked to small farms, animal welfare, deep sustainability, community support, and other factors lost today by Big Organic (2010). As these developments within big organic go against many of the environmental, economic, health, and social concerns the organic movement initially set out to address, farmers and consumers have been increasingly opting for local food as a response (ibid.). The local food system is now offering a second wave of alternative agriculture in an attempt to meet the desires of growers and eaters that go far beyond what the organic label can provide.

During the interviews, farmers disagreed on the validity of organic certification. While some farmers thought the certification was necessary, as it ensured growers were meeting a certain standard and provided insurance that these practices were met for members, others thought by building personal relationships with consumers and explaining their practices, trust and community relations trumped any form of government regulation. In praise of their growing practices, one farmer discussed how “[m]y practices exceed the [organic] standard, but I don’t need a certification...members just know from coming here and talking to me” (DNG). For some farmers the community aspect of CSA eliminated the distance between farmers and eaters, allowing farmers to go beyond organic and translate these efforts to their members. As the farmer was directly responsible to the community they were embedded in, members had the ability to work with the farmer to influence growing practices. One farmer expressed his frustration with the direction the organic legislation took: “I don’t believe in certified organic. I think it’s bullshit. There’s nothing in the standards that takes into account environmental or human health which is what I care about” (SSP). Another went on to explain direct dissatisfaction with “our federal government on the way they’ve been operating the whole organic program,” particularly over the lobbying of “congress to allow these other pesticides in which there are synthetic pesticides, and now congress says, they are organic” (NP). Farmers additionally recognized the consumers desire to have certified organic farms since “it’s an easy yes or no. They don’t need to educate themselves” (SSP). The lack of support for the federal response to organic by the farmers in the study was particularly clear in the survey, with all 16 farms reporting they practiced organic agriculture, but only 4 of the farms were certified. The reasons farmers didn’t become certified went beyond any legislative issues, as some farmers discussed that in order to serve their community well and provide affordable food not all the produce could always be organic.

On the other hand, one farmer articulated his support for the certification, explaining:

We originally decided to do it because we were wholesaling some stuff to Whole Foods and they require that if you want to call yourself organic. I feel like it, when you’re in an anonymous market like that, you need that designation to demonstrate...I think that certifying it makes sense for CSA farms too because they don’t know really. There’s a lot of stuff that I think customers in that market...are really just trusting the farmer. And I think that there’s stuff that by going through the certification process, the certifier catches and helps you figure out how to maintain the standards. You know, the organic farmers fought for a unified certification program and then organic farmers went and decided that it was the government and they were big brother looking over our shoulder and we don’t want to be part of it...And there’s this whole thing going on with people, local kind of replacing organic and people feel like if it’s a local farm then it’s got all the integrity. (SGF)

Much of the recent scrutiny of organic may be justified, but let us not make the same mistake about local. Local is not synonymous with sustainable agriculture or quality farm livelihoods. It does not guarantee consumers that their food is pesticide or herbicide free, nor is it always environmentally superior. For instance, lamb, dairy, and apples produced in the New Zealand and shipped to the UK were found to be more energy efficient than the same products produced in the UK itself due to variations in production methods and natural resources (Saunders, Barber et al. 2006). This is not to say local food doesn’t have many comparative advantages environmentally speaking, just that more work is needed to understand the regional dynamics of agricultural production.

While farms in this study area certainly fit into the 'local food' category it is important to acknowledge that local food is a broad category and not synonymous with CSA. In the interviews farmers explained how their growing practices go beyond organic. These practices are difficult to incorporate into legislation, as the use and preservation of local eco-systems through agriculture requires locally adapted knowledge. As an example, one farmer explained: "I concentrate very highly on pest management through the pests themselves" (NP). Others discussed the farm as a whole system. The farm had recently decided to buy chickens – not with the primary intention of raising meat and eggs for sale, rather to produce more fertilizer on the farm, thus reducing external inputs. These findings are in line with the general move away for certification-based systems such as "organic" and "fair-trade", as AAFNs opt to move "towards food sovereignty and food justice that promote the power of participants to control or coordinate their parts of the larger food system." This could result in the "spread of DFS while simultaneously promoting the often overlooked social equity and participatory process dimensions of sustainable agriculture." (Kremen, Iles et al. 2012)

The potential ecosystem services provided by DFS are vast, including soil building and regeneration, nitrogen fixation, water infiltration, nutrient cycling, pest and disease suppression, promotion of native pollinators, improved biodiversity, etc. A 2010 report by the United States National Research Council (NRC) found ample evidence of DFS that contribute towards the sustainability goals they outlined; however, these systems will not become widespread without "incentives for appropriate markets, reform of U.S. farm related policies, and [the] reorientation of publicly funded agricultural science" (Reganold, Jackson-Smith et al. 2011). One such benefit is the increase in biodiversity achieved through DFS. According to the Convention on Biological Diversity and other leading biodiversity researchers, "chemical-intensive industrialized monoculture of vast areas in agricultural heartlands is the main driver of biodiversity loss in landscapes of food production" (Tschardtke, Klein et al. 2005, Cardinale, Duffy et al. 2012, Barthel, Crumley et al. 2013). In a comprehensive study, Tuck et al. find organic farming on average increases species richness by roughly 30% (2014). In the study area, farmers grew an average of 38 different crops and an astonishing 115 varieties as compared to the typical monoculture in the United States that grow less than a handful. Thus, these diverse growing practices may assist in delivering wider ecosystem services, replenishing some of the natural assets industrial agriculture has decimated. While the industrial farming system has resisted incorporating alternative farming strategies on the premise that this required land to be taken out of production and therefore would reduce farm profits (Foley et al. 2005), there's sound quantitative research to suggest that through sustainable intensification farms could become 60-100% more productive; therefore eliminating the believed tradeoff between sustainable growing practices and yield (Pretty, Noble et al. 2006, Badgley, Moghtader et al. 2007).

The discussion regarding agriculture and the environment is framed in such a way to argue that society must minimize the negative environmental effects of agriculture on the environment. This is a false dichotomy. The terms of the debate need be changed to solving how society can restructure the food and fodder system. Focus should be on developing and learning from traditional institutions and growing practices to revolutionize agriculture, transforming it from one of the most environmentally destructive systems imaginable to a system that works synergistically with people and nature to enrich the environment, society, and economy.

### **3. RESILIENCE, SCALABILITY, AND REPLICABILITY**

*Objectives such as supplying diverse, culturally-acceptable foods to communities, supporting smallholders, sustaining soil and water resources, and raising food security within particularly vulnerable areas, must not be crowded out by a one-dimensional quest to produce more food.*

-Oliver De Schutter, Special Rapporteur on the right to food, United Nations Final Report

Agricultural systems are highly complex, warranting systematic analyses that take into account the positive and negative externalities associated with these systems rather than a narrow evaluation based on yield. The fixation on yields<sup>13</sup> seems to arise out of the supposed dual crisis facing the world: the planet's population is expected to reach 9 billion by 2050 while climate change is expected to generate volatile growing conditions that may substantially

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<sup>13</sup> Closing the yield gap between developing and developed country agriculture could greatly reduce poverty and provide food security in many developing countries, however improving yields in and of itself need not directly translate into reductions in poverty or the provision of food security. The challenging questions of how these yield improvements are achieved and who benefits must be addressed.

reduce yields (Challinor, Watson et al. 2014). To garner a complete understanding of the resilience, scalability, and replicability of agricultural systems stakeholders must change the terms of the debate and evaluate these systems on their ability to provide all with the basic human right to healthy food in an economically, socially, and environmentally sustainable way.

The current industrial food system attempts to maximize profits while externalizing many of the costs associated with the methods of production used. While many argue farms continue to grow in size due to economies of scale that exist in agriculture (Sumner 2014), there is strong evidence that large farms on average are not as efficient as small farms by land or energy consumed per unit of output (Rosset 2000, Helfand and Levine 2004, Lynch, MacRae et al. 2011). Analyzing farming systems in the broader context of the economy rather than simply focusing on farming techniques reveals “the interconnected systems of inputs, labor, land, capital, governance and knowledge that maintain specific types of agricultural production, distribution, and consumption systems” (Kremen, Iles et al. 2012). Rather than arising due to efficiency gains, the industrial food system is dependent on government and multilateral institutions supporting the dominance of industrial agriculture in the global north (Patel, Holt-Gimenez et al. 2009). This is not the only option. Alternatives do exist and are making headway in developing and developed countries alike. In the U.S., CSA and its participants are attempting to promote a viable alternative to business as usual in agriculture. What is less clear however is whether alternatives like CSA and AAFNs more broadly have the ability to continue their impressive expansion and appeal to consumers beyond niche markets.

### **3.1. Resilience**

For systems to survive they must be resilient, or, as we have learned through the recent financial crisis, unstable systems need significant institutional support (i.e. government) to persist. There are many parallels between the current industrial agricultural system and the financial sector, both of which have prospered by means of government support through friendly legislation and direct subsidies to continue business as usual. While major bank bailouts have occurred in the financial system as a result of the 2008 financial crisis, large-scale monocultures are bailed out season after season through taxpayer supported crop insurance schemes. For food systems, resiliency can be separated into environmental resiliency and economic resiliency, though the two are deeply connected.

While U.S. farms have produced tremendous gains in yield and gross output, they are doing so under a highly unstable system (Council 2010). Experts anticipate climate change will generate significant yield loss, but will also create high levels of instability in agriculture through increases in yield variability (Challinor, Watson et al. 2014). Searching for alternative systems that both provide for a growing population and do so in a sustainable and resilient way has proved challenging (Battisti and Naylor 2009). Many experts have argued yields produced through organic agriculture<sup>14</sup> are insufficient to meet global demand, and therefore major expansion of cropland would be needed (Seufert, Ramankutty et al. 2012). Others find organic agriculture matched, or even exceeded, conventional yields (Badgley, Moghtader et al. 2007).

Discussing his report to the United Nations regarding doubling world food production within ten years, Oliver De Schutter argued that “[t]oday’s scientific evidence demonstrates that agroecological methods outperform the use of chemical fertilizers in boosting food production where the hungry live – especially in unfavorable environments.” De Schutter goes on to state “agroecological projects have shown an average crop yield increase of 80%” across more than 50 countries (UN 2011). These improvements, coupled with wide support by the scientific community for agroecology and its benefits as a sustainable and resilient system (Wezel and Soldat), CSA farms and their commitment to sustainable farming practices can be part of the solution to provide a resilient farming system and improve outcomes under an increasingly unpredictable future.

Evaluating a diversified farm system on its ability to withstand environmental shocks is essential, but ensuring the system is also resilient in the face of turbulent economic times is essential for a truly resilient farming system. Understanding economic viability is complex, as the industrial food system is heavily subsidized, thus distorting markets (Monke and Johnson 2010). Lass et al. found promising results of the economic resiliency of CSA farms, noting 94.6% of CSA farms planned on continuing operation (2001). In the study area, no farms discussed the economic downturn or its effects on the farm’s viability, however a share with a CSA could be viewed as a luxury good, therefore generating instability during economic downturns. No studies have been conducted thus far to

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<sup>14</sup> While organic is not synonymous with sustainable there exists a great deal of data on outcomes of organic farms, allowing for analysis across a wide range of regions and crops.

analyze this aspect of CSA. As discussed above, CSA provides a structure that reduced farm reliance on financial institutions, therefore potentially buffering CSA farms against shocks for instance to interest rates. In the farm crisis of the 1980s, farms faced exorbitant interest rates causing many to close. While these farms were reliant on financial markets, CSA can improve economic resiliency through insulating farms against these shocks.

### **3.2. Scalability**

If the CSA and other AAFNs are to have system-wide impacts on the food and agriculture landscape, scalability and replicability are necessary. Currently they are situated on the periphery of the food system, but if expansion occurs it is imperative to resist co-optation by the industrial food system, as happened to organic, and maintain a commitment to agro-ecological principles (Bacon, Getz et al. 2012), along with other economic and social justice concerns. Regarding scalability, the focus should not be exclusively on the farm operation but the system it operates in as a whole. While increasing the scale of the farm itself may or may not be desired, increasing the scale of operations across processing, marketing, storing, distributing, and information sharing can play an important role in providing a viable alternative to the industrial food system.

There is nothing inherent to farm size, though size seems to correlate with production methods used. Recalling the scaling-up of organic agriculture, results indicate pivotal changes in production methods undermined the organic movement (Guthman 2004). Within the CSA framework farm size tends to be small when compared to average U.S. farms, though size needs to be put in context given the production practices. While a 5-10 acre CSA farm may provide a livelihood for a farmer, a corn farm may need ten times more land to make a comparable income. In the study area it was clear that some farms struggled with their small size, resulting in inefficiencies on the farm. Regarding farm size, a CSA needs to scale up in terms of acres and/or members to ensure farmers are able to make a living. Once livelihood requirements are satisfied, data indicates that communities benefit from *more* farms and therefore additional increases in scale should not be pursued (Gómez, Zhang 2000).

Focusing on increasing scale in other aspects of the food system proves more fruitful. Guptill and Wilkins find that in order to build viable local food systems collaboration among stakeholders is necessary (2002). Additionally, Gillespie et al. argue other local food outlets such as farmers' markets function as incubators for local agricultural businesses, such as CSA, and increase the density of local food networks (2007). Producers and consumers themselves can't make the necessary changes without building supportive institutions such as food hubs and food policy councils, which can contribute by facilitation of production, distribution, and aggregation of local food product. To build a relevant alternative food system that can actually provide a path away from the industrial food system, institutional support is needed at all levels, from the town to the world at large.

In September 2014 the USDA intervened to assist CSA and other forms of direct-to-consumer sales in their endeavor to expand. The Agricultural Secretary Tom Vilsack announced over \$27 million in grants to the Local Food Marketing Promotion Program (LFPP) and the Farmers Market Promotion Program (FMPP). The programs will provide funds for the promotion of food hubs, aggregation businesses, local food processes capacity, farmers markets, and CSAs. As the Secretary said at the announcement "Investing in local and regional food systems supports the livelihoods of farmers and ranchers, especially smaller operations, while strengthening economies in communities across the country" (USDA 2014). This support, coupled with the announcement of a new full farm insurance program by the USDA is a small step towards supporting these alternatives.

### **3.3. Replicability**

Replication of CSA has done very well, with a near threefold increase in the number of CSA farms since 2009. While the U.S. farm sector has continued on its path of farm concentration, resulting in fewer and larger farms, CSA farms continue to increase in terms of farm numbers. With CSA farms in every state and the model becoming increasingly more popular, there appears to be a great deal of opportunity for continued increases in CSA farm numbers.

One potential driver of the increase in CSA farms is its location needs. Although CSA farms do not necessarily cater exclusively to their surrounding community they need to be located in close proximity to their members because of the community aspect of the farm and the highly perishable nature of the produce. The value of the connection between farm and community was discussed above, but it additionally provides the added benefit of a large number of small farms serving local populations. While previous data showed CSA farms are disproportionately located in regions with a higher socioeconomic status (Schnell 2007), the study area contained farms located in towns with

varied socioeconomic status. One of the farmers in a struggling neighborhood discussed how their farm works closely with the community to fit the CSA to their needs, therefore providing an affordable option so that they “can have access to better quality food that would otherwise be the case” (KLO).

CSA farms are, however, struggling with many challenges in all phases of farming, from finding and securing land, to acquiring the appropriate means of production. Government support of these endeavors could drastically change CSA farms' ability to start and thrive. Advocates of alternative food systems are not asking for a handout. They want a level playing field to provide them with a fair opportunity. Government has long supported research and development for large-scale, chemical intensive, highly mechanical farming under a two-fold goal: boost yields and generate cheap commodity crops (Reganold, Jackson-Smith et al. 2011). The lack of government support for DFS has resulted in a severe disadvantage with regards to price, risks management, technology, R&D, diversification into value-added products, access to value-chains, etc. Without addressing these inequalities, it is challenging to see how CSA and other DFS can transition out of serving a niche market and serve the public at large.

These disparities provided the mortar for the barricades to farm expansion and survival faced by many farmers in the study area. Appropriate technology for their farm's size and methods of production was one such dilemma for farmers, with 50% reporting problems with available technology. One farmer discussed how agricultural history has played a major role in the technology and equipment available:

All the agricultural production equipment now is geared toward bigger farms, minimum 100 acres. You won't find any tools or farm implements or tractors that are being built for serious use at less than 100 acres. In the past, a 20 acre farm is totally ubiquitous and they made equipment that is appropriate scale for that stuff. So we are having to buy equipment that is really old. The same thing for organic and conventional. All the equipment reflects the move to conventional in the 50's and 60's when herbicides gained widespread use. Then from the 50's to the 90's basically, nobody didn't use herbicides to kill the weeds (sic), so everyone stopped making tractors that did mechanical cultivation, which is to disturb the soil and kill the weeds. The last company to make a mechanical cultivating tractor is from the 80's. We have two tractors from the 50's and I hate them, they break constantly, you can't get parts. We want a new tractor, but nobody makes them anymore. (SSP)

Since CSA and other DFS that consist primarily of small farms continue to gain momentum, producers of farm equipment are slowly responding; however it is unlikely such responses will be adequate without government support for research and development. Other challenges to farm expansion, replication, and survival discussed by the farmers included:

- Compensation – the vast majority of farmers acknowledged that the current pricing of a share does not include adequate compensation for the farmer, nor does it provide the farm with sufficient funds to pay farm workers the fair wage they deserve
  - Furthermore, Lass et al. found 68% of CSA farmers were unsatisfied with their financial security, with retirement and health care representing farmers leading concerns (2003). These farmers did believe that CSA helped their financial security (ibid.)
- Risk management programs – 55% of interviewees were interested in participating in a risk management program if an appropriate one for their type of farming were developed
- Share waste – The most frequent farmer reported member concern was ‘too much food’ (31%). Farmers believed this would dissuade some customers from continuing as members. Although farmers offered smaller or half shares in response, they continued to struggle with striking the right balance
- Infrastructure – farmers frequently lacked adequate storage and processing facilities. In order to secure a year-round income, some farmers expressed interest in winter shares and value-added products, however local capacity was a limitation
- Regulation – Additionally, a few farmers discussed how regulation regarding storage and processing at a small scale was cumbersome (e.g. slaughterhouses)
- Land security – Farmers that did not own all their land were very concerned about the farm's long term viability due to insecure tenure rights
  - Additionally, U.S. farm land accounts for 85% of average farm equity and if farmland is not owned it provides additional challenges for the farmers ability to retire (USDA 2012)

- Access to inputs – acquiring inputs, for example seed, proved to be challenging for some farmers who grow a large variety of crops and varieties and therefore need limited quantities of each type of seed
- Research and Development appropriate for diversified farming systems
- Competition – While the study area has a vibrant local food system, it may be reaching an upper limit as 38% of farmers in the study area reported challenges in recruiting sufficient members and lacked the ability to raise prices in order to pay living wages due to competition
  - Competition has led some farmers to seek markets outside their town or country, with three farms from the study area driving to Boston (2 ½ hours) to deliver produce

These challenges threaten the ability of CSA farms to meet the needs of the members, farmers, and community, providing fertilizer for further research to analyze how CSA can overcome these obstacles. Government can take on a substantial role by improving applicability of farm policies and programs, hence promoting inclusiveness. While government support slowly adapts, farmers are working together to overcome the collective challenges they face. Farm Hack, an online community for farm innovation, provides a space for farmers to share their experiences and knowledge. Farmers share their detailed plans on do-it-yourself equipment, growing methods, and high tech equipment to improve efficiency on the farm, taking the initiative to innovate and provide support one another. Additionally 94% of CSA farmers are interested in working to help strengthen CSA – providing educational opportunities through technical assistance, research, and public lectures (Lass et al. 2003). The farmers, along with growing interest in healthy sustainable foods are taking the future of CSA into their own hands and pushing forward. Only time will tell if CSA can maintain its integrity while continuing its impressive growth in farm numbers, but it looks promising.

#### 4. CONCLUSION

*“[O]ur entire agricultural system is built on cheap oil. As a consequence, our agricultural sector actually is contributing more greenhouse gasses than our transportation sector. And in the meantime, it’s creating monocultures that are vulnerable to national security threats and are now vulnerable to sky high food prices or crashes in food prices, huge swings in commodity prices, and are partly responsible for the explosion of our healthcare costs, because they’re contributing to Type 2 diabetes, stroke, and heart disease, obesity, all the things that are driving our urge explosion in healthcare costs.”*

-President Barack Obama, 2008

Community Supported Agriculture is an exciting Future Economy Initiative that is building ties between the communities and their local farmers to revitalize small and mid-sized family farms. The goals are lofty – to break out of the traditional food system and engage in a symbiotic relationship that supports a vibrant and sustainable community, economy, and environment. This case study has presented a fuller understanding and evaluation of CSA, indicating many successes, but highlighting the major challenges that urgently need to be addressed to ensure the long-term success of CSA as a Future Economy Initiative.

Farm Livelihoods and access to food need to be central to the discussion moving forward. But CSA and other alternatives to the industrial food system can’t have these conversations in isolation. A recent Washington Post op-ed by Mark Bittman, Michael Pollan, and Ricardo Salvador, three leading food scholars, called for a national food policy to overhaul how America grows, distributes, and consumes its food. They provide the bones of such a policy, at least to start the national discussion:

- All Americans have access to healthy food;
- Farm policies are designed to support our public health and environmental objectives;
- Our food supply is free of toxic bacteria, chemicals, and drugs;
- Production and marketing of food are done transparently;
- The food industry pays a fair wage to those it employs;
- Food marketing sets children up for healthful lives by instilling in them a habit of eating real food;
- Animals are treated with compassion and attention to their well-being
- The food system’s carbon footprint is reduced, and the amount of carbon sequestered on farmland is increased;
- The food system is sufficiently resilient to withstand the effects of climate change.

These points suggest that a comprehensive reform of our national food policy is exactly what's needed. Future Economy Initiatives, like CSA farms, can help invigorate a national debate of restructuring the food system by providing real-world examples of how the economy can be reorganized in a way that puts people first. CSA has plenty of room for improvement, but that needs to be received as part of the learning process. Alternatives to business as usual can't be expected to be perfect. By utilizing the Future Economy Initiative Framework, which provides guidelines for researchers, participants, and policymakers, a great deal of insight is gained. First, the framework allows for a comprehensive and comparable evaluation system across Future Economy Initiatives; therefore providing the necessary insight for what is working, what is not, and what is to be done. Specifically this framework has already allowed for an in-depth understanding of CSA farms and has provided information for all interested parties moving forward on the shortcomings and needed changes for CSA to flourish.

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## Appendix A.

Sample Interview:

### Introduction- main season veggie CSA

1. First could you tell me briefly about your history as a farmer?
  - a. How did you become interested in farming?
  - b. How did you build your skill set necessary for running a farm?
  - c. How'd you get going on this current farm?
    - i. And when and why did you start a community supported agriculture (CSA)?

### Now I'd like to ask you more specific questions about the CSA model

2. First off, what is a CSA?
3. How do you communicate and explain the CSA model to members?
  - a. What are some of the common concerns members have about the CSA model?
4. Who bears the risk of the season and why? (Probe: weather events, blight, etc)
  - a. Does operating a CSA affect risk management on the farm in any way? (probe: as apposed to not operating a CSA).
    - i. Who benefits from good harvests and who bears the costs during poor harvests? (probe: any effect on members?)
  - b. Does the farm have any other ways of hedging risk? (Probe: for instance crop insurance? If so, is it subsidized in any way?)

### Next I'd like to ask you a few questions about the members and the shares they receive.

5. What is the relationship between members and the farm?
  - a. What does the farm provide members and what do members provide the farm? (probe: labor?)
6. Is retention of members an issue for the farm?
  - a. Is there anything specific that you believe affects retention?
  - b. What are some ways the farm has tried to improve retention rates?
7. What is a share?
  - a. What types of shares are offered through the farm?
  - b. How is the price and quantity of shares offered determined?
  - c. How does the farm decide what to grow for the CSA?
    - i. Do members receive produce they're not accustomed to?
      1. How do you promote the use of unfamiliar crops?
    - ii. Does the farm offer any u-pick as part of the CSA? Why do you offer u-pick? (value, utilization?)
  - d. Do you think the shares are accessible for low income members?
    - i. Does the farm have any policies in place to increase accessibility (probe: sliding scale, work share, payment plan?)
  - e. Does the farm provide pick-ups off farm?
    - i. If so, where and why?
  - f. Does the farm distribute products from other local farms? (probe: fruit, meat, grain, etc.)
    - i. If so, How? Why?
  - g. Do you have other markets for your produce besides the CSA?
    - i. How do you decide what is distributed to members and what is sold elsewhere? (probe: grading?)

### Next I'd like to ask you a few questions about community involvement in the CSA model.

8. Are community activities part of your CSA? (probe: what type? For instance potlucks, harvest days, etc)
9. What is the value of community involvement to the farm if any? (probe: what role or actions does the community provide?)

**Now a few questions about the farm operation**

10. Who owns the land the farm is located on?
  - a. What are the tenure agreements?
    - i. Advantages/disadvantages/ideal goal?
  - b. Does the CSA model affect access to land for you or tenure in any way?
11. Who owns the farm and its equipment?
12. How does operating a CSA affect your ability to finance operations on the farm?
  - a. Do you offer any form of payment plans to members? (low income?)
    - i. If so, does this affect the farm's ability to fund operations?
13. What are the labor sources on the farm? (probe: self, family, member, community, wage labor, intern)
  - a. How do you value your own labor (probe: do you pay yourself a fair market wage)?
    - i. Are there non-monetary benefits/compensation to your work?
    - ii. Do you have other sources of income?
  - b. Do you view yourself as an educator for your apprentices and interns?
    - i. Do you have any method of evaluating the apprentice program? (probe: what? Start-up CSAs by your apprentices?)

**[Synthesis]**

Before I leave, I'd like to ask you a few more open-ended questions

14. Thinking about what you've said earlier during this interview, what are the advantages and disadvantages of CSA farming?
15. What types of research and development for instance from agricultural extension services (?) could be beneficial to you (or CSAs in general?)
16. Due to the farm size and diverse production does the farm have problems with available technologies?
17. What type of risk management programs would be beneficial?
18. Are there any key issues regarding the CSA model that I've overlooked?
19. Do you have any other thoughts you would like to share on the matter?

**Thank you for taking the time to speak with me today. Your input is very valuable to our project.**

## Appendix B.

Sample Survey:

Q1 Name \_\_\_\_\_

Q2 Zip Code \_\_\_\_\_

Q3 Farm Characteristics

- \_\_\_\_\_ Years farm in operation
- \_\_\_\_\_ Total cropland acres operated
- \_\_\_\_\_ Total acres operated by farm
- \_\_\_\_\_ Years CSA in operation?
- \_\_\_\_\_ Acres operated for CSA operation

Q4 Farm practices used on the CSA

1. Certified Organic
2. Organic, not certified
3. Conventional
4. Biodynamic
5. Other (please specify) \_\_\_\_\_

Q5 Types of Shares offered from your farm (please check all that apply)

6. Vegetable full-share
7. Vegetable half-share
8. Winter share
9. Year round share
10. Meat share
11. Flower share
12. Egg share
13. Dairy
14. Cheese
15. Other \_\_\_\_\_

Q6 How many main season vegetable share CSA members does your farm have?

\_\_\_\_\_

Q7 How many main season vegetable share CSA members would you *like* to have?

\_\_\_\_\_

Q8 What is the price of the main season vegetable share?

\_\_\_\_\_

Q9 How many weeks does this share run?

\_\_\_\_\_

Q10 How many people does this share feed on average?

\_\_\_\_\_

Q11 Number of crops and varieties offered in share throughout season (you may put down a range)?

	Main season vegetable share
Number of crops	_____
Number of varieties	_____

Q12 Farmer A,B,C characteristics

	Farmer A	Farmer B	Farmer C
Age	_____	_____	_____
Years of farming	_____	_____	_____
Years as a CSA farmer			

Q13 Farmer Gender

	Farmer A	Farmer B	Farmer C
Male	1.	2.	3.
Female	4.	5.	6.

Q14 Relation of Farmer B to Farmer A (check all that apply)

7. Co-farmer
8. Romantic Partner
9. Employee
10. Apprentice
11. Manager
12. Other \_\_\_\_\_

Q15 Relation of Farmer C to Farmer A (check all that apply)

13. Co-farmer
14. Romantic Partner
15. Employee
16. Apprentice
17. Manager
18. Other \_\_\_\_\_

Q16 Education

	Farmer A	Farmer B	Farmer C
Less than high school	19.	20.	21.
High school diploma	22.	23.	24.
Vocational degree/certificate	25.	26.	27.
Some college	28.	29.	30.
College Graduate	31.	32.	33.
Graduate Degree	34.	35.	36.

Q17 Gross farm income

37. \_\_\_\_\_

Q18 Net farm income

38. \_\_\_\_\_

Q19 Net CSA income

39. \_\_\_\_\_

Q20 Gross income per acre

40. \_\_\_\_\_

Q21 Net income per acre

41. \_\_\_\_\_

Q22 Non-farm income

42. \_\_\_\_\_

Q23 Does the farm receive any government subsidies?

43. Yes

44. No

Q24 Does the farm receive any government insurance?

45. Yes

46. No

## Appendix C.

<b>Farm Name</b>	<b>Abbreviation</b>
Coyote Hill Farm	CHF
Dave's Natural Garden	DNG
Enterprise Farm	ESF
Good Bunch Farm	DGB
Intervale Farm	ITF
K & L Organics	KLO
Solid Ground Farm	MSG
Natural Roots	NRF
New Land Farm	NLF
Red Fire Farm	RFF
Scantic Valley Farm	NP
Simple Gifts Farm	SGF
Stone Soup Farm	SSP
Sweet Morning Farm	SMF
Upingil	UPG
Wilder Brook Farm	JWB