

Increasing Small Farmer Access to Direct Markets

Bethany Baron

Frank Batten School of Leadership and Public Policy

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Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgments and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, by the University of Virginia, or by any other agency.

Honor Code

On my honor as a student, I have neither given nor received unauthorized aid for this assignment.

Bethany A Baron

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Key Terms and Definitions

Agribusiness – Agriculture conducted on commercial principles, especially using advanced technology and on a large scale.

Community Supported Agriculture (CSA) – A system in which a farm operation is supported by shareholders within the community who share both the benefits and risks of food production.

Direct Market – Markets in which a producer sells directly to their consumers without having to go through a distributor or other third party.

Food Deserts – An area that has limited access to affordable and nutritious food.

Food Hub – A centrally located facility with a business management structure facilitating the aggregation, storage, processing, distributions, and/or marketing of locally/regionally produced food products (USDA, 2019)

Farmers' Market – A food market at which local farmers sell produce and often meat, cheese, and bakery products directly to consumers in a community.

Farm Stress – A stress trend among American farmers due to high levels of debt, increased rates of natural disasters, and low farm prices. If left untreated, this can act as a risk factor for farmer suicide.

Farm Subsidies – A government incentive paid to agribusinesses and/or farms to supplement their income, manage the supply of agricultural commodities, and/or influence the cost and supply of agricultural goods.

Industrial Agriculture – Large-scale, intensive production of crops and animals, often involving chemical fertilizers on crops or the routine use of antibiotics in animals (NRDC, 2020)

Small Farm – An agricultural operation that generates less than \$250,000 in gross cash income and is under 230 acres (USDA, 2021)

United States Department of Agriculture (USDA) – The federal executive department responsible for developing and executing federal laws related to farming, forestry, rural economic development, and food.

Executive Summary

Today, 98 percent of America's food supply is produced by an industrial farm, also known as an agribusiness (Wender, 2011). The rise in agribusinesses has resulted in the decimation of family farms across the United States as current government policies (most notably, that of federal farm subsidy distribution that disproportionately favors cheap monoculture industrial level farming) make it impossible for them to compete with industrial farms. Between 2012 and 2017 this forced over 60,000 small farms to close or sell their land to larger farms which has helped to decimate rural America, with Virginia being no exception to this trend (USDA, 2017).

The consequences of small farms closures are well documented and numerous (USDA, 2017). A few key examples include rural job loss and economic decline, increases in the number of rural food deserts, damage to rural environments and ecosystems (as most small farmlands are either developed or purchased by industrial farms), and even increases in rural suicide rates, especially among farmers.

To combat this, many family farms are now looking for new ways to make ends meet through direct markets, which are markets where they can cut costs related to processing and distribution by selling directly to their consumers. Examples of this include farmers' markets, Community Supported Agriculture (CSAs), food hubs, as well as online marketplaces. All of these have exploded in popularity over the last two decades and some form of each of them now exists in every state across the US, but they are particularly popular on the West Coast.

My client, Market Central is a nonprofit that runs several farmers' markets throughout the year in Charlottesville, VA. Their goal as an organization is to increase community access to locally grown affordable food as well as to support sustainable agricultural practices. Like many nonprofits involved in agriculture throughout the US, Market Central is overwhelmed by the number of farmers looking to become vendors in their farmers' markets and the lack of opportunities for farmers to sell in these direct markets is contributing to small farm closures.

With this in mind, my alternatives are evaluated upon the criteria of efficacy (how many vendor spaces does it create), cost, sustainability (in the form of consumer retention), equity (weighed equally between procedural equity and outcome equity), and administrative feasibility. My four proposed alternatives are to open an online market, open an additional farmers' market on city owned space, open a food hub, and/or to open a CSA to accommodate the excess demand of farmers.

My recommendation is to start with the implementation of a CSA as it is inexpensive to start, can easily accommodate the excess demand of farmers, and studies have shown that this model can help farmers receive fair prices for their goods while also having rates of consumer retention that are over 60%, all of which are crucial in ensuring small farmer economic solvency. Additionally, I am also recommending that Market Central implement all my other alternatives, first with starting a CSA, then an additional farmers' market, then open a food hub (if resources allow), and then to start an online market as this combination best balances giving small farmers vendor opportunities with concerns about oversaturating the market with sellers.

Client Overview

Founded in 2003, Market Central is a non-profit organization that organizes Charlottesville farmers' markets and various community outreach programs to promote local food and local businesses. Market Central's mission is to promote the value of local and sustainably raised farm products sold at Charlottesville farmers' markets. Market Central strives to do this by collaborating with the City of Charlottesville and local philanthropic organizations throughout their market season to provide support services that increase access to local food throughout the community.

As a part of this mission, Market Central recognizes the struggles that family farms face and looks to give farmers a place to sell their goods directly to consumers. By providing an opportunity for farmers to rent space for a small fee, farmers are able to tap into markets in their local community that would otherwise have significant barriers to entry, such as a rental payment for a storefront. While these barriers to entry have been around for decades, the COVID-19 pandemic has made this even more pressing as many farmers' markets across the state and country have been forced online or have closed entirely. However, with heightened sanitation protocols and social distancing policies, Market Central has committed to remain open with in person operations for the duration of the COVID-19 pandemic, as long as it can be done safely. To date, Market Central has had no reported incidences of COVID-19 spreading and its in person operations have helped provide a lifeline to many small farmers that otherwise would have little to no access to consumers due to the pandemic.

However, even prior to the pandemic, Market Central has faced a surplus of demand for vendor slots. As of October 2020, Market Central has the capacity to handle about 50 vendors at any given time. However, the vendor slots are almost always full and Market Central has had to start a waiting list that has since grown to over 30 potential vendors. With this in mind, Market Central has begun looking into potentially expanding into creating an additional market which would give more small farms, artisans, and other local businesses space to directly market their goods to consumers. Other alternatives up for consideration also include partnering with other nonprofits in the area or CSAs to see how opportunities can be expanded to meet the needs of these farmers.

Problem Statement

Charlottesville lacks centrally located affordable vendor space for family farmers and other small businesses to sell their goods in direct local markets. This has subsequently contributed to the record number of family farm closures over the last 10 years.

Background

Agriculture in Virginia is the state's largest private industry, generating over \$70 billion annually and creating jobs for 334,000 Virginians (USDA, 2017). Additionally, according to the USDA, 90% of farms in Virginia are classified as small farms (USDA, 2017). However, despite these contributions to the economy and job creation, farms across the state have been facing an economic crisis for decades. There are hundreds of reasons for this, but two major factors are international competition and federal farm subsidies. Today, America only produces one-quarter of its food supply because it is cheaper to acquire most crops from other countries (ERS, 2020). Additionally, the Trump Administration's "trade war" has caused many countries to enact tariffs against some American crops, thereby driving the demand for American crops even lower (PBS, 2019). Sporadic crop prices combined with stark inequalities in farm subsidy distribution have acted as constant problems for the entire industry, but family farms have been disproportionately affected.

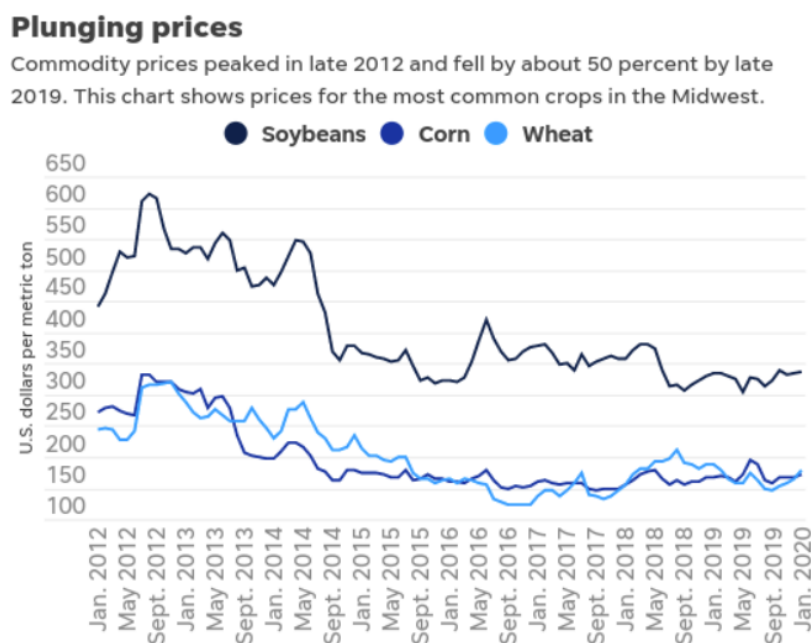


Figure 1: Decline of Major Cash Crops Prices Since 2012 (USDA, 2020)

The primary reason for this inequality stems from the US government's Farm Bill, which is passed every five years since 1933, that allows for the government to subsidize the otherwise failing industry (Wender, 2011). The reason these subsidies hurt small farms is because they prioritize the

largest growers of certain cash crops (such as corn or soy) due to the limited amount of resources the federal government can provide (Wender, 2011). This subsequently results in family farms receiving little or nothing while their larger competitors receive an additional advantage over them through these subsidies. This has made it next to impossible for family farms to compete with industrial farms. In February, the USDA forecast 2020 median farm household income at -\$1,840 meaning that farm households would lose money from the farm. According to the USDA, this has

resulted in many small farmers being forced to take on an additional job off the farm, just to cover their farm related expenses (USDA, 2012). With the COVID-19 pandemic making this situation even more bleak, record numbers of small farms are set to declare bankruptcy or be forced to sell their lands within the next five years if trends continue. With this in mind, many small farms are now turning away from the mainstream market that they can no longer compete in and are instead turning towards alternative markets with direct marketing opportunities, such as farmers' markets, Food Hubs, and Community Supported Agriculture (CSA).

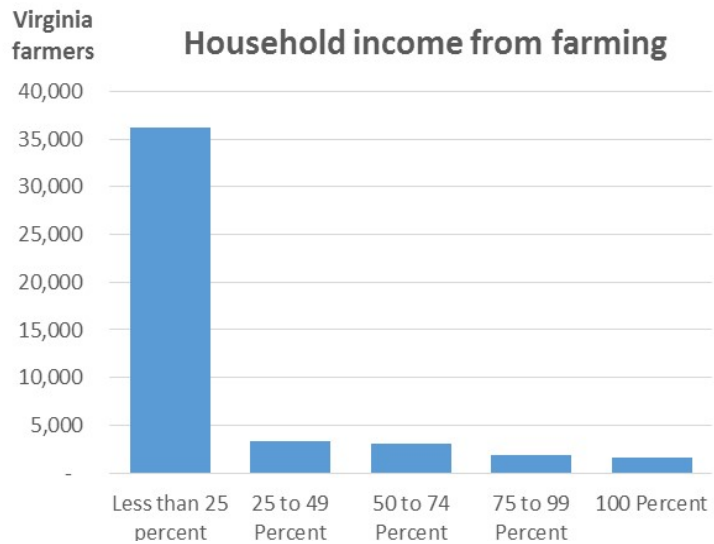


Figure 2: Average Household Income From Farming (USDA, 2012)

Consequences of Small Farm Closures

Job Loss

America's farmers often act as a foundation of their local economies. The farm economy has a disproportionate effect on farming-dependent counties, which accounted for nearly 20% of all rural counties and 6% of the rural population in 2017 (Farm Aid, 2020). As farmers are forced into bankruptcy or foreclosure, a ripple effect on equipment dealers, local purchasers, and food processors can further tax rural economies. For example, in 2019, the combination of depressed farm prices and punishing weather conditions left many farmers unable to plant and caused a documented strain on Midwestern farm economies, particularly those dependent on corn and soybean production (USDA, 2019). According to a report from Rutgers University, current farm policies combined with unstable crop prices has accelerated the already existing trend that overwhelmingly favors industrial farming (Rutgers, 2017). Since 2013, small farms have struggled to deal with spiraling produce prices due to foreign competition as well as government aid only going towards industrial farms, since there is not enough government assistance available to all farms. Government farm aid has subsequently been prioritized for larger farms due to their larger productive capacity, with smaller farms often receiving little to nothing. These factors, combined with technological advances that require industrial farmers to need fewer employees has resulted in a 15 percent reduction in farm jobs between 2000 and 2013 (NPR, 2016). With fewer jobs available and the agriculture industry becoming less economically viable, the poverty rate for rural America is now almost double the national average (ERS, 2020).

Increase in Rural Food Deserts

Small farm closures have also coincided with an increase in poverty and increase in the number of food deserts in rural areas of the US. About 5 million people in rural areas have to travel 10 miles or more to buy groceries, according to the Department of Agriculture (USDA, 2019). With the closures of small farms leading to less local buying power, larger grocery stores have fled rural America due to the gradual decline in customers. Furthermore, they are often replaced with dollar-store chains selling cheap frozen or other pre-packaged foods. Local health officials worry that the flight of fresh foods will only add to rural America's health problems by exacerbating higher rates of heart disease and obesity. According to the CDC, rural areas lead Americans when it comes to the obesity epidemic in the United States (CDC, 2018). Multiple studies conducted by the CDC over the last 20 years have indicated that 34 percent of adults living in rural areas are obese (CDC, 2018). The same studies found these results to be consistent across race, gender, and educational status in rural areas. A 2020 report compiled by Trust for America's Health (TFAH) identified several factors found to contribute to rural obesity rates including poverty, limited access to healthy food and affordable foods, and lack of education or access to healthcare (TFAH, 2020).

Increase in Suicide Rates

CDC studies have shown that American workers in the farming, fishing and forestry industries have some of the highest suicide rates of any professional group. A 2017 study conducted by the

University of Iowa found that suicides among farmers today are 3.5 times higher than the national average (UI, 2017). According to the National Farmer Union’s Farm Crisis Center, falling commodity prices, natural disasters harming crop yields, and increasing levels of farm debt have all contributed to stress, mental illness, and suicide rates skyrocketing among farmers (NFU, 2019).

Sources of stress

Increasing debt, plunging commodity prices and worsening weather make it tough for farmers.

Increasing debt

Total farm debt has hit levels not seen since the 1980s farm crisis. Real-estate debt surpassed the 1981 peak in 2016.



Figure 3: High Levels of Farm Debt Contribute to the Rise in “Farm Stress” (USDA, 2020)

Furthermore, rural areas in general have more sporadic access to mental health resources, tend to earn less, and have worse overall health than more populated areas (CDC, 2017). As the farm economy continues to falter, signs of stress are continuing to rise among farmers. So far in 2020, Farm Aid has seen a 27% increase in contacts to their farmer hotline, a majority from farmers in crisis who exhibit acute signs of stress (RHI, 2020).

Damage to the Environment

Profitability of US agriculture has been on a steady decline since the 1970s as technology improvements have allowed for industrial farms to greatly reduce the need for small, local level farms. While it is true that new technology has allowed for industrial farming to be more efficient, it has also created many damaging unintended consequences, including significant environmental impacts in rural areas.

Worsening weather

In 2019, weather – including massive Midwest floods – prevented American farmers from planting 19.6 million acres of crops, more than double any other year since the U.S. Department of Agriculture began keeping track in 2007.

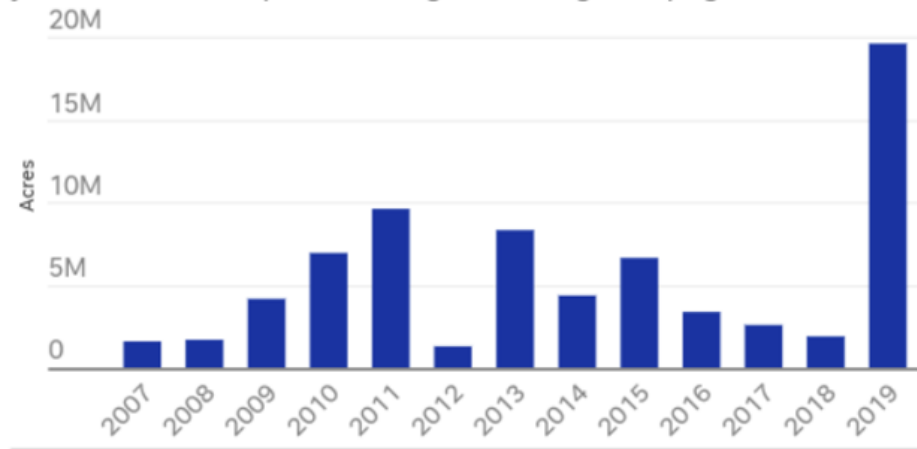


Figure 4: Climate Change Contributes to Increased Floods (USDA, 2020)

As discussed previously, the downward spiral of profitable crops such as corn or soybeans has pressured industrial farms into overproducing as much as possible, in an attempt to make ends meet. This has subsequently resulted in overuse of pesticides, fertilizers, and other chemicals that cause devastating effects to the communities around these industrial farms. For example according to the National Family Farm Coalition (NFFC), due to intensive farming practices, nearly half of all productive topsoil has disappeared in the last 150 years and topsoil is currently eroding 10 times more rapidly than it can be replaced (NFFC, 2019). Furthermore, one of America's main crops, corn, uses over 5.7 million tons of synthetic nitrogen fertilizer a year. Due to the mass quantities used combined with climate change, the result is a deadly combination that can poison the water sources in nearby communities, thereby destroying entire ecosystems along with creating a public health crisis among an already vulnerable population (NRDC, 2020).

Review of Existing Literature

Efficacy of Online Markets

One direct market structure that farmers are increasingly turning to is that of online markets. By selling their goods online, farmers are able to cut out a loss of potential earnings that would usually happen if they went through a distributor or the traditional supermarket route. This model works particularly well for preserved goods as farmers do not have to worry about their products spoiling before they can sell them or over non-growing seasons to supplement their income. Furthermore, the COVID-19 pandemic has made this model both in the context of small farmers and for larger supermarkets explode in popularity, with as many as 50 percent of Americans reporting that they had purchased at least some of their groceries online in the last two weeks (Redman, 2020). While these rates are expected to drop at the end of the pandemic, preliminary data has suggested that online grocery ordering rates will likely remain above their pre-pandemic levels, which has the potential to make online markets for small farmers an economically viable option to pursue long term, but it is clear more data is needed to discern this. However, it is also worth noting that the literature on online food markets, especially those focused on small local farmers, is relatively new and therefore this market structure's long term economic solvency is unclear.

Efficacy of Farmers' Markets

Another direct marketing method small farmers have used is farmers' markets. According to the Farmers' market Coalition, a farmers' market is defined as a public and recurring assembly of farmers or their representatives selling the food that they produced directly to consumers (FMC, 2020). Farmers' markets may be indoors or outdoors and typically consist of booths, tables or stands where farmers sell their produce, live animals or plants, and sometimes prepared foods and beverages. The size of the market may be just a few stalls or it may be as large as several city blocks. They are distinguished from public markets such as Food Hubs, as Food Hubs are generally housed in permanent structures, open year-round, and offer a variety of non-farmer/non-producer vendors, packaged foods and non-food products (National Agricultural Library, 2020). Similar to CSAs, the number of farmers' markets has increased significantly in recent years, in part due to the growing interest Americans are having in healthier, organic foods. This is evidenced by the fact that farmers' markets, which numbered only around 1,700 in 1994 have grown to well over 8,100 by 2013 (USDA, 2015).

The short-term benefits of farmers' markets on local communities is well-documented. A 2016 study conducted by UC Davis found across 434 farmers' markets found that for every \$1 million generated in revenue, a farmers' market on average, creates 32 local jobs whereas larger wholesale growers created, on average, only 11 (UC Davis, 2016). Furthermore, a study conducted by the USDA's Economic Research Service (ERS) compared both small and large producers selling the same goods locally versus selling goods to mainstream vendors and in all five products evaluated, the study found that producing and selling locally retained almost all of the revenue within the local economy (USDA, 2010). Lastly, according to the US Census of Agriculture, farms selling

locally through farmers' markets were found to remain in business more often than those who did not sell in farmers' markets (USCA, 2012).

Similar to CSAs, farmers' markets as they are known today did not achieve widespread popularity until the early 2000s. This in turn limits existing literature in its ability to draw long term trends over time. Lastly, some literature has suggested that since farmers' markets often operate with less regulations than a typical wholesale market, this can result in an increased number of food-borne illnesses (AJAE, 2015). However, it is clear that more data is needed to evaluate both farmers' markets benefits and drawbacks.

Efficacy of Food Hubs

A third method of direct marketing employed by small farmers looking to enter alternative markets is that of Food Hubs. According to the USDA, a food hub, is facility with a business management structure facilitating the aggregation, storage, processing, distribution, and/or marketing of locally/regionally produced food products (USDA, 2020). Along with providing these core operational functions, food hubs often provide training and assistance to producers in areas such as sustainable production, post-harvest handling and packing, and food safety. Food hubs also fill gaps in food systems infrastructure, by providing transportation, product storage, and product processing. Although companies and organizations that fit the USDA definition have been operating in the United States since at least the early 1970s, most food hubs, as well as the common use of the term, started after 2008.

Benefits of food hubs are similar to that of CSAs and farmers' markets in that, with an appropriate level of community buy-in, studies have found that they generate an impact on the local community in the way of local job creation, local revenue retention, and promoting small farmer economic viability (NAL, 2020). However, it is important to note that food hubs typically operate on a much larger scale than most CSAs or farmers' markets, which are often limited to a single community or neighborhood.

Drawbacks often cited in studies of food hubs include that they often require a significant amount of administrative support and typically take several years to become economically profitable for a local community (Worcester Food Policy Council, 2019). Additionally, since food hubs require a permanent structure and typically require buy-in from multiple communities in a region, they often operate at a large enough of a level that they face competition from traditional wholesale producers as well (Worcester Food Policy Council, 2019).

Efficacy of CSAs

One method that has emerged to aid in small farm viability is that of Community Supported Agriculture (CSA). First coined in the 1980s, CSA is a system that connects small farmers and consumers within a community by allowing consumers (usually families local to the farm) to pay a subscription to the fresh produce before the harvesting season begins (Local Harvest, 2020).

CSAs generally focus on the production of high-quality foods for a local community, often using organic farming methods, which allows them to charge a higher price for their goods. This in turn creates a shared risk membership marketing structure, as it develops a consumer group that effectively funds a whole season's budget in advance in order to have access to quality foods. According to the US Department of Agriculture, there are more than 12,500 CSAs across the United States, with this number expected to increase in the future since exploding in popularity in the early 2000s (USDA, 2019).

While most of the literature on this model typically only evaluates trends from the last 10 years, it is worth noting that it is overwhelmingly positive for both small farmer economic viability as well as consumer health. Furthermore, this model often creates added benefits for the local community including job creation (as the average CSA creates 13 jobs) or educational opportunities where farmers can educate consumers about their produce and promote healthier eating (FMC, 2020). While studies show that not every CSA is successful, research shows that those that are able to achieve the necessary buy-in from their local communities are statistically impactful in the local economy.

However, it is also worth noting that some studies found that a statistically significant number of farmers actually lose out on the economic rent in this model by actually lowering fees to the point of jeopardizing their own economic security (Galt, 2013). While more research is needed to discern exactly why this has happened in some CSAs, researchers have proposed that it may be because the closer consumer-producer relationship actually causes some farmers to undervalue their own expenses to make it more affordable for their customers, despite the fact that the CSA model success hinges on farmers charging higher prices than larger producers, in order to secure livable wages for themselves.

Limitations of Literature

The main source of limitation among almost all sources consulted is that of novelty. While many of these direct marketing structures exist in some capacity in almost every state in the US, many of them have only come into existence within their respective communities in the last five to ten years. This in turn, makes it difficult to see long-term effects that these markets have on producers and consumers. However, preliminary evidence in most cases has demonstrated overwhelmingly positive effects for both farmers and local communities, provided certain conditions are met. Lastly, it is also worth noting that while other forms of direct marketing for small farmers exist, the literature and federal support consistently identifies online markets, CSAs, farmers' markets, Food Hubs, or some combination thereof as the most numerous, most successful in improving small farm economic viability (as of now), as well as the most studied. Therefore, these four options were selected for this review. However, it is clear that more studies are needed to discern long term effects.

Introduction of Alternatives

Due to the nature of my client as a small nonprofit and the limited resources at their disposal, my alternatives largely aim to work on this problem by either making what already exists in the area more efficient or through the creation of more opportunities for small farmers to engage in direct markets to meet the growing demand.

Alternative 1: Expand Online Marketplaces Infrastructure

When compared to 2019, COVID-19 has helped to raise the number of farmers selling goods online by over 220% (Gullickson, 2020). This has subsequently increased the need for platforms for farmers to sell their goods on as well as organizations to provide technical assistance. Current infrastructure in this area is vastly inadequate in most areas. For example, pre-pandemic, Local Food Marketplace typically added around 50 new sellers a year, now they are getting requests to add 20 every single week (Local Food Marketplace, 2020). Therefore, one method to provide farmers with more opportunities to sell would be to expand Market Central's already existing online marketplace, although it is likely this would also require the hiring of additional staff or partnering with another nonprofit (or perhaps, the City market) to have access to more resources. This is because Market Central's online marketplace is currently quite basic, has limited selling capacity, and no ability to deliver at this moment in time. Therefore, efforts to expand its vendor capacity and ability to reach potential customers (i.e. through the addition of a delivery option) would require new funds to set up. It is possible that these funds could be obtained by City-level grants as they have made various amounts of emergency funds available to nonprofits who contribute to the local economy.

Alternative 2: Support the Creation and Retention of Local CSAs

Community Supported Agriculture is one of three forms of direct markets that smaller farmers have turned to. Currently, there are around a dozen CSAs that serve the Charlottesville Albemarle area at any given time throughout the year. This model allows for smaller farms and their community to come together to share the benefits and risks of food production by having community members purchase shares of each farm's production before that actual growing season. Members then receive regular distributions of the farm's produce throughout the season. The benefits for this alternative are, in theory, numerous. Farmers receive financial security by receiving compensation upfront while also connecting with their local communities through job creation (as the average CSA creates 13 jobs compared to three in traditional industrial farming) or educational opportunities where farmers can educate consumers about their produce and promote healthier eating (FMC, 2020). Furthermore, it is already common practice for CSAs to distribute their produce through boxes sent directly to peoples' houses, which could mitigate certain COVID-19 related concerns. However, it is worth noting that the literature on the effectiveness of CSAs is mixed, in part due to their novelty as well as the wide definition as to what can currently be considered as a CSA. Additionally, it is also worth noting that the reason there are not more CSAs is because they require a certain level of community buy-in as well as

farm membership to even stand a chance at being remotely successful. For example, some studies have shown that CSAs should not be attempted with under six farms participating because the lack of produce variety is unlikely to attract a reliable consumer base. Market Central has experience with CSAs and even has some members sell as vendors in their in-person farmers' market. Additionally, Market Central has experience (pre COVID-19) in working with local farms to create educational opportunities for community members as well as other farmers looking to get involved in direct markets. Therefore, this alternative would place Market Central as a facilitator in gathering interested vendors and connecting them to information they need to get started. This coordination could also help in promoting the diversification of farm products in the CSA which would aid in its ability to attract a stable consumer base. This could also include providing financial support if Market Central is able to receive additional funding through state level and local grants that they are currently in the process of applying for.

Alternative 3: Support the Creation and Retention of Local Food Hubs

Benefits of food hubs are similar to that of CSAs and farmers' markets in that, with an appropriate level of community buy-in, studies have found that they create local jobs, generate local revenue retention, and promote small farmer economic viability (NAL, 2020). Food Hubs are also typically able to provide farmers with additional assistance regarding manufacturing processes or transportation costs if necessary, which can accommodate a larger amount of goods than most farmers' markets or CSAs. Drawbacks cited in literature include the large amount of administrative and financial support necessary to set one up as well as the fact that this investment often takes several years to become economically profitable for a local community (Worcester Food Policy Council, 2019). Additionally, since food hubs require a permanent structure and typically require buy-in from multiple communities in a region, they often operate at a large enough of a level that they can face competition from traditional wholesale producers as well (Worcester Food Policy Council, 2019). This alternative would likely involve Market Central partnering with an already existing Food Hub in the area, such as Local Food Hub located in Charlottesville, as a way of helping vendors on Market Central's waitlist have a direct market to sell in. Again, this would place Market Central more in a facilitator or connection type of role, as Food Hubs require significant funds, and time to get off the ground.

Alternative 4: Advocate for the City of Charlottesville to Open City-Owned Spaces for Markets

Centrally located market space is important for farmers because it greatly increases the probability of consumers stumbling across vendors without having to actively look for them. For this reason, Market Central currently attracts vendors from 10+ counties surrounding Albemarle due to their central location in downtown Charlottesville. With this in mind, one alternative that my client has expressed interest in pursuing is to see if some of these City-owned spaces, such as parks, could be repurposed for additional, COVID-safe markets. While this option would likely save a lot in terms of cost, its political feasibility and sustainability, are unclear due to this options dependence on as it is possible that if this were to be implemented, it would likely only last until the pandemic is over.

Introduction of Criteria

Due to the priorities of my client as well as the various obstacles it faces as a small nonprofit, I decided to weigh each of my criterion equally when assessing my alternatives. I made this decision primarily because I found that if I sacrificed one criterion for the sake of another, it would often result in alternatives that were either ineffective, infeasible, or not in line with the goals Market Central has as an organization.

Efficacy

This criterion measures how much each alternative reduces the number of small farmers unable to find an affordable way to sell their goods. Most markets in the area keep waiting lists after their number of vendor slots fill up for a season. In an ideal world, I would measure this by checking how many vendors remained on the waiting list for the duration of the season after an alternative is implemented. However, as this is difficult to project, I instead plan to project this by pulling existing data from programs implemented in areas with similar demographics to Charlottesville, to gather an approximate gauge for how many vendor slots were created through each alternative, while also taking scale into account.

Cost

This criterion measures the total cost of implementation for each alternative incurred by Market Central. This could include costs incurred through needing to hire additional staff or paying existing staff more, cost of renting or purchasing new space for markets, or providing incentives to attract volunteers.

Sustainability

This criterion measures how feasible each alternative is to generate and retain a reliable consumer base over time. This criterion is especially important regarding the end of the COVID-19 pandemic as this will likely affect some of my alternatives, such as the availability of certain grants or relief programs as well as higher than typical rates of online purchases. Additionally, many financial difficulties that affect small to mid-size farmers can often be attributed to fluctuations in income. I plan to operationalize this criterion by projecting rates of consumer retention (likely through a percentage) by gathering data on studies similar to my alternatives enacted in other areas of the US. After gathering this data, I will then assess each alternative on a low to high scale based on its ability to generate a loyal consumer base that could provide farmers with some financial security.

Equity

In practice, federal and state level farm policies overwhelmingly favor larger farms because they produce more and resources are scarce. According to the USDA, the largest 10 percent of farms received nearly 80 percent of all government subsidies. Furthermore, 60 percent of farms (including almost all small level farms) receive nothing (USDA, 2020). According to the USDA, 80% of farms that receive subsidies from the federal government receive an average payment of

around \$550 (in 2018), so I plan to use this amount to gauge each alternative for equity purposes. I chose to exclude the top 10% of farms as they receive average payments of well over \$30,000 each, something that is not feasible for any of my alternatives or for my client. This would involve the creation of a scale to quantify and compare alternative performance on this criterion with low meaning that the alternative does not meet this threshold, and high meaning that the alternative goes above this threshold. Additionally, I plan to operationalize that criterion by determining the degree to which each alternative gives procedural equity (as in, farmers are allowed an able to have an input in the market structure) as well as equity in outcomes which will gauge how well each alternative gives small farmers' market opportunities to get fair prices for their goods.

Administrative Feasibility

This criterion measures how much of an administrative burden each alternative will place on Market Central. In the case of Market Central, I find this alternative particularly important because Market Central is a small nonprofit with only six staff members. Therefore, some of my alternatives will be quite difficult unless other resources (i.e. acquiring additional staff or partnering with a larger organization) are acquired. Similar to political feasibility, I would likely rate each alternative's administrative burden on a scale of low to high, with high indicating that the alternative places the lowest level of administrative burden on Market Central. I plan to evaluate this by using a composite scale (low-medium-high) that captures a variety of aspects of administration, most concretely, that of the number of steps each alternative takes as well as the level of complexity each step requires. Factors likely to be included in this scale include a timetable necessary to enact each alternative, the scale at which change would need to be made to existing systems within Market Central to make it happen (most notably, that of labor), as well as the necessary level of buy-in from community members.

Evaluation of Alternatives

Outcomes Matrix

Table 1: Evaluation of Alternatives

Criteria	Alternative 1: Expand Online Marketplaces Infrastructure	Alternative 2: Advocate for to Open City- Owned Spaces for Markets	Alternative 3: Support the Creation of Local Food Hubs	Alternative 4: Support the Creation of CSAs
Efficacy	High (5)	Medium (3)	Medium-High (4)	Medium (3)
Cost (rank)	~\$30,000 (4)	~\$76,000 (2)	~\$200,000 (1)	~\$40,000 (3)
Sustainability	Medium-Low (2)	Medium (3)	Medium (3)	High (5)
Equity	Medium-Low (2)	Medium (3)	High (5)	Medium-High (4)
Administrative Feasibility	Medium (3)	Medium-Low (2)	Low (1)	Medium (3)
Total Score	16	13	14	18

Alternative 1 Evaluation: Expand Online Marketplaces Infrastructure

Efficacy

I rate this alternative as high on efficacy primarily because once an online marketplace is up and running, the number of vendors it could support is, in theory, unlimited. For example, the farm ecommerce company Local Line allows to market organizers to set up a website through their monthly subscription service that can support an unlimited number of vendors and products (Local Line, 2020). This alternative differs from the others in that there is no physical space involved to limit its expansion. However, this alternative comes with significant ambiguity about the quality of spaces created, depending on which direction Market Central decides to go. For example, the average online order for pickup from an online farmers' market was \$59 in 2020. However, those who delivered directly to customer's homes saw an average order that was \$179. Market Central has estimated that such a market would start somewhere between 30 and 50 vendors, based on their growing waitlist size as well as experiences interacting with other local businesses. Therefore, while it is true that this alternative does generate the most possible vendor capacity, it does come with a tradeoff in terms of sustainability.

Cost

This is the cheapest of the four alternatives with an estimated cost of \$30,000 for its year one costs. Given that Market Central is already at capacity in terms of workload, hiring additional employees to get an online market off the ground is a must. After speaking with my client, we have estimated that we would need to add at least two paid part time employees working at 10 to 15 hours a week to get a medium sized (30 to 50 vendors) online market up and running as well as to manage distribution for pick up.

Sustainability

I rate this alternative medium-low in terms of sustainability primarily due to its ease of maintenance once fully setup. However, this alternative does come with the tradeoff in terms of its consumer retention as it has the lowest projected level of consumer retention, which is estimated at around 30% to 40%. This is primarily due to this option's relatively low level of consumer engagement in its day-to-day functions.

Equity

I rate this alternative low for its procedural equity and medium for its equity in outcomes because an online market would likely not be a format that could be adjusted for the needs of specific farmers. However, I am rating this as medium in its equity in outcomes as it would give small farmers opportunities to sell their goods in a market with minimal barriers to entry that would also give them fair prices for their goods.

Administrative Feasibility

I rate this alternative medium for its administrative feasibility due to the number of steps it would take for Market Central to enact. In order to undertake this alternative Market Central would need to enact three steps: hiring additional employees to handle the new market, set up a website for an online marketplace, and finally, organize appropriate resources for distribution (i.e. arranging pickup or delivery options). Additionally, I chose to rank this alternative as medium due to the fact that Market Central already has some experience working with online marketplaces and access to distribution space that make this an undertaking with only moderate complexity for Market Central.

Alternative 2 Evaluation: Support the Creation and Retention of Local CSAs

Efficacy

I rate this alternative as medium in terms of efficacy. Charlottesville has dozens of parks that could easily accommodate a moderately sized farmers' markets from time to time if these spaces were made easily reservable by organizations (Charlottesville Parks and Rec, 2021). Similar accommodations for existing farmers' markets have been undertaken across the US, with success both before and during COVID-19 as these spaces are large enough to accommodate the market itself as well as necessary COVID-19 precautions. (City of Alexandria, 2021). In the case of the City of Alexandria's Old Towne Farmers' market, they are able to safely accommodate roughly 100 vendors safely in a space that is 60,000 square feet (City of Alexandria, 2020). Market Street Park in Charlottesville is similar in size to this and is located in downtown Charlottesville, which would make this an effective space for an additional market that could accommodate the necessary 30 to 50 vendors.

Cost

The primary cost associated with this alternative is the costs necessary to set up a second farmers' market. According to CMFA, farmers' markets with 25 to 50 farm vendors typically require a budget of 12,000 to 20,000 to get set up as well as six months of planning (CMFA, 2021). This alternative would also require the hiring of two additional full-time employees (40 hours a week at \$18/hr) for the nine months out of the year. Additionally, the Old Towne Farmers' market I use as a case study in Alexandria pays \$50 an hour for its space rental in the city. Assuming Market Central pays a rate similar to this to the City of Charlottesville and continues to operate for 9 months of the year, the estimated yearly cost for this alternative is between \$72,000 and \$80,000. This is the second most expensive alternative.

Sustainability

I rate this alternative medium in terms of sustainability as it is unlikely that the City would allow an arrangement like this to continue into a post COVID-19 world. This is primarily because the additional space required right now to have COVID-19 safe markets would no longer be necessary and local farmers' markets could use spaces that they had previously occupied, such as the Water Street parking lot. Therefore, this could be an effective short term, rather than long term option. Additionally, the AAEEA conducted a study that farmers' markets with this structure typically have a consumer retention rate of about 50%.

Equity

I rate this alternative low in procedural equity but high in equity in outcomes primarily because farmers do not have a lot of control in the actual market setup itself (i.e. cannot pick days of the week for market, or hours market is open) but rather, this is controlled by Market Central. Additionally, I rank this high in outcome equity because today the average farmer going through a mainstream market only makes about 14 cents on every dollar spent on their goods, whereas in a farmers' market, this amount is typically 90 cents or higher on the dollar (FMC, 2017).

Administrative Feasibility

I rate this alternative medium-low in terms of administrative feasibility mainly for the fact that the alternative is largely dependent on Market Central's partnership with the City of Charlottesville as otherwise the appropriate space for this alternative is unattainable as well as the large number of steps involved in its undertaking. In order to enact this alternative, Market Central would need to undertake at least five distinct steps: hire at least two additional staff, launch an awareness campaign to compile a list of vendors for the new market, communicate with the City government to locate and pay for appropriate market space, and then coordinate with Market Central's already existing market to make sure they do not end up competing with one another by being open at the same time.

Alternative 3 Evaluation: Support the Creation and Retention of Local Food Hubs

Efficacy

I rate this alternative as medium-high in terms of its efficacy as the structure of a food hub is effective for a 30 to 50 vendor sized market that Market Central is looking to create. For example, the average Food Hub works with about 80 farms in a local area (within 400 miles), but many work with 100 or more, depending on local demand levels. Therefore, this structure could be easily modified in the future if more than 50 farms decide to join, which is quite possible given that Albemarle county alone has nearly 1000 farms.

Cost

This alternative is my most expensive option, with a startup cost estimated at around \$200,000 for its year one costs. This cost includes costs associated with the hiring of additional employees, launching an awareness campaign to recruit farmers, as well as planning, equipment, and space rental (likely a warehouse) for its year one costs. Food Hubs are expensive and typically take at least five years to start generating returns, therefore this amount would likely need to be raised in advanced through a combination of state and local level grants, as well as possible community level fundraising. With that said, this alternative does most directly address the policy problem as food hubs are able to tackle small farmer inequalities from a variety of different angles. Therefore, given the cost and logistics this is likely more appropriate as a longer-term option, conditional on Market Central receiving additional funds through grants or other sources.

Sustainability

I rate this alternative as medium in terms of sustainability as food hubs are typically associated with similar levels of consumer retention as farmers' markets, which is estimated at 50% (Local Food Hub, 2021). Additionally, food hubs, if run effectively typically operate with 80 farms or more, which can help them to be relatively insulated from economic shocks, which can help them become stable parts of a local economy long term (USDA, 2020).

Equity

I rate this alternative high for its procedural equity as farmers are actively involved in setting up and organizing a food hub to meet their local level needs. Many food hubs even allow for farmers to own the food hub as a cooperative or in conjunction with a nonprofit in a management role. Additionally, I rate this alternative high in its equity in outcomes food hubs not only allow for small farmer access to a market where they can get fair prices for their goods, but they can also provide additional resources for small farmers that they would not have access to in a mainstream market. These additional resources can include fairly priced places for food storage, equipment for processing or distribution, as well as business management classes or other practical skills. This in turn, helps to reduce the barriers to entry in a market that typically requires significant investment in order to have efficient means of production (USDA, 2020).

Administrative Feasibility

I rate this alternative low for its administrative feasibility primarily due to the number of steps, time, and resources it would take for Market Central to get a Food Hub up and running. Additionally, several of these steps, in addition to requiring large amounts of resources, are administratively complex and require coordination or planning among a multitude of actors. Organized and successful food hubs typically take years to get enough funding and consumer-producer connections to make an impact on their local economies (TOG, 2013). In order to enact this alternative Market Central would need to undertake at least seven distinct steps: hiring at least two additional full-time employees, launching an awareness campaign to compile a list of interested farmers, locate appropriate space (likely a warehouse), gather the necessary funds for the space, launch an additional awareness campaign to compile a list of interested consumers (i.e. local restaurants, schools, hospitals, etc.), gather necessary equipment, recruit additional staff (volunteer or part time) to help organize its opening. This alternative requires the most steps as well as steps with the most complexity out of my alternatives.

Alternative 4 Evaluation: Advocate for the City of Charlottesville to Open City-Owned Spaces for Markets

Efficacy

I rate this alternative medium for its overall effectiveness at creating additional vendor space for farmers. This is because a CSAs' structure typically makes them most effective when they are of medium size (between 30 and 50 farms). This is because if CSAs are too small, then they usually struggle to provide a diverse enough of products for consumers to retain an adequate consumer base, but if they are too large (100+ farms) then they typically struggle with have a direct farmer to consumer interaction that is essential for the high rates of consumer retention (60%+) that accompany this model (USDA, 2019). It is worth noting that CSAs can function with as little as six farms or as many as 11,000 and still make an impact for small farms and their communities, which makes this option versatile for functioning in both rural and more populated areas (USDA, 2019).

Cost

This alternative has an estimated cost of \$40,000 for its year one startup costs. This includes hiring two additional part time employees working at \$18/hr for 15 hours a week as well as costs associated with launching an awareness campaign to gather interested farmers. The reason this alternative has low startup costs is because many CSAs typically pool resources that farmers already have (i.e. land, seeds, equipment) (NC State, 2021). This alternative has the second lowest estimated yearly cost out of the four alternatives. Additionally, studies on CSAs have found that for every dollar spent supporting a CSA translates to two dollars in public health savings by reducing rates of diabetes and high cholesterol in rural communities (AJPFA, 2020).

Sustainability

I rate this alternative high for its sustainability because CSAs require high levels of consumer involvement to be economically solvent options for farmers. These high levels of consumer involvement result in this alternative having the highest rate of consumer retention out of all the alternatives considered here. Studies on CSAs in North Carolina (which are similar in structure to those in Virginia) have shown that CSAs typically have consumer retention rates well over 60%, making this the highest out of the four alternatives (NC State, 2021).

Equity

I rate this alternative as high for equity for its procedural equity and medium for its equity in outcomes for small farmers. First, CSAs are owned by both farmers and consumers which gives the farmers a high level of control in customizing their practices (i.e. when to operate, what to grow, etc.) to best fit their consumer base. Second, this option does enable small farmers to have access to a local market where they are able to get fair prices for their goods as numerous studies have shown that consumers are willing to pay up to 20% more for locally produced goods (Clemson, 2008). However, various studies on North Carolina CSAs have shown that the success

of this model is in part dependent on the business prowess of the farmers involved, which can be a barrier for a population that typically does not attend college. (NC State, 2021).

Administrative Feasibility

I rate this alternative medium for its administrative feasibility as it requires relatively few steps or resources for Market Central to set it up. Additionally, several of these steps are in areas that Market Central has some experience in already (i.e. product distribution, coordinating with larger groups of farmers) thereby giving the steps a lower level of complexity than some of my other alternatives, such as food hubs. In order to enact this alternative, Market Central would need to undertake three distinct steps: hire two additional part time employees, launching an awareness campaign to compile a list of interested farmers, and then launching an additional awareness campaign to connect interested farmers with potential shareholders.

Recommendation

I recommend that Market Central start with implementing alternative 4 due to its high sustainability, limited upfront cost, and ability to be implemented relatively quickly, even under pandemic conditions. It is important to note that these alternatives are rarely mutually exclusive and that it is common for farmers to undertake some or even all of these alternatives at the same time to make ends meet. For example, Bellair Farm sells in Market Central's Saturday farmers' market, Local Food Hub, and its own CSA throughout the year (Bellair Farm, 2021). Furthermore, promoting farmers to seek out multiple direct market options helps to reduce the risk of oversaturating the market because each alternative reaches different groups of consumers. Therefore, if financial resources allow, all of these alternatives should be pursued in the long run first with starting a CSA, then opening an additional farmers' market, then pursuing a Food Hub (if financial resources allow), and then starting an online marketplace in order to create a network of opportunities that best balances direct market opportunities to small farmers with concerns with oversaturating the market with farmers.

Implementation

Community Supported Agriculture (CSA) can provide small local farmers financial security in a way few other market models can. By consumers providing payment for crops upfront, farmers no longer run the risk of being left in financial disaster just because of a bad harvest season (NAL, 2019). Although there are many benefits to having a functional CSA, there are also pitfalls communities and nonprofits face when trying to set them up. These include, but are certainly not limited to, farmers having the appropriate business skills, having a large and diverse group of farmers participating, and making consumers aware of what a CSA is and how they can get involved. Furthermore, it would be a mistake to consider that CSAs as the best or only direct market that communities should undertake to help support their local level farmers. In fact, pursuing only one direct market option for farmers is risky as a few bad seasons is often enough to lose enough consumers to make the model no longer function.

Stakeholder Roles

Farmers

The success of a CSA is hugely dependent on the farmers that get involved. Farmers who decide to participate in a CSA model must be prepared and able to dedicate a portion of their time towards creating and maintaining meaningful relationships with their shareholders as they are essential to the success of this model. Furthermore, participating farmers must be ready and willing to coordinate their production with many other farms, in order to help protect the economic interests of the CSA as a whole. Lastly, farmers need to make sure that their shareholders are aware that they are sharing the risks of farming with one another and that shareholders may not necessarily get all the produce they are expecting if it is a particularly tough growing season.

Shareholders

Equally important to the farmers themselves, the CSA model requires much higher levels of consumer involvement than in typical markets. In addition to being willing to accept the financial risks that come with funding a harvest before it happens, consumers also need to be prepared to provide labor during harvest season, if their CSA requires it.

Nonprofits

Nonprofits like Market Central are also critical to the success of CSAs as they act as facilitators. Nonprofits help to connect interested farmers and consumers as well as providing farmers with educational or technical support where they need it. Once a CSA is up and running, however, a functional CSA should largely be able to operate without nonprofit support for its day-to-day functions.

Steps for Implementation and Possible Issues

1. Equipping Farmers with Business Skills

Farmers must quickly learn how to market products, build customer loyalty, advertise, manage risk and diversify their revenue sources (NC State, 2021). Furthermore, depending on the level of shareholder involvement, it is not uncommon for CSAs to force farmers to turn a portion of their operation into a customer service business. Successful CSAs typically include farms of various sizes, ages, and levels of businesses experience, thereby making it important that resources are in place for those who need them. Market Central has a long history of collaborating with the City of Charlottesville and local philanthropic organizations to bring the community for access to local food as well as educational opportunities (Market Central 2021). Therefore, utilizing this connection as much as possible once a group of farmers and shareholders has been identified would help to minimize this issue.

2. Recruiting Shareholders

An awareness campaign should be launched to attract interested and appropriately skilled/diverse farmers for the CSA. This can be done both online and at Market Central's in person farmers' market. Once a group of farmers have been identified (perhaps from Market Central's waiting list), farmers will need to assess how much they can grow in order to gauge how many sells will be available to sell to shareholders before advertising the CSA to the public. For shareholder recruitment, farmers need to be sure to include information including the price, duration of a season, and expectations for shareholders. This can be done by spreading information through Market Central, local farmers' markets, and also on social media.

3. Ensuring a Diversity of Farms and Farm Products

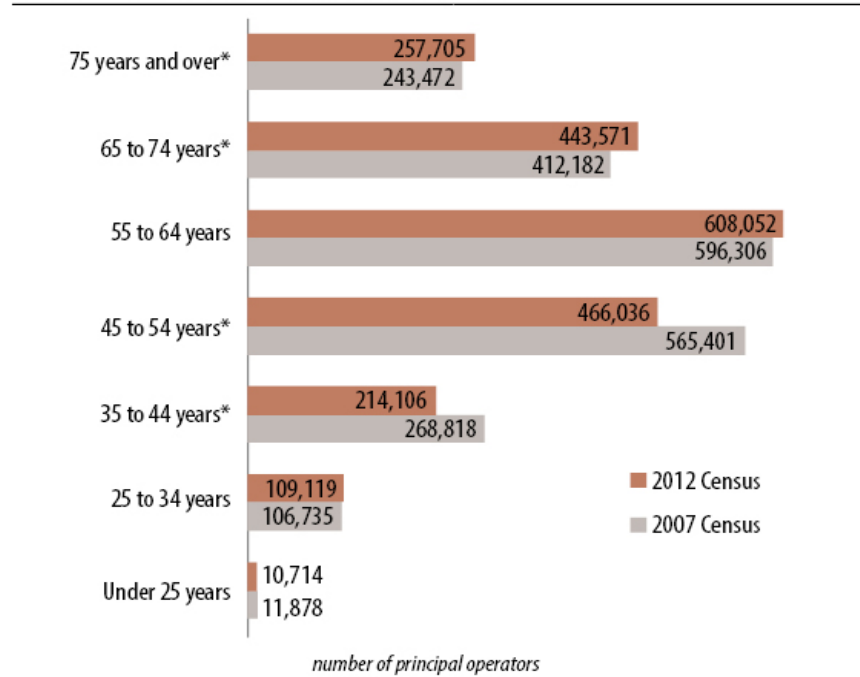
One issue that potentially causes CSAs to fail is because the farms involved produce too similar of products during a season (Growing Produce, 2020). The success of a CSA depends on good planning as shareholders will expect to receive roughly equal amounts of produce throughout the season, not a few heads of lettuce in the spring, dozens of vegetable varieties in the summer, and a handful of turnips in the fall. Additionally, CSAs typically operate for 20 weeks at a time and most also offer 10-week (or half-season) shares. Therefore, planning crop schedules to have multiple crops available throughout the season is essential because ensuring consistent produce diversity helps with shareholder retention season to season (Helmer, 2020). Each share in a CSA usually contains between 10 to 20 pounds of fruits and vegetables. To provide a diverse array of produce, farms can create crop schedules that allow them to harvest between five and 12 different types of produce each week (Growing Produce, 2020). Having general numbers to aim for as well as calculating available farming space before planting even begins is crucial for maintaining adequate stocks of produce throughout a season.

Conclusion

While starting up a CSA can provide significant economic and health benefits for both farmers and their shareholders, it is important to be aware that many CSAs do fail if they are not set up properly or the necessary community buy in just is not present. By following this order for implementation, Market Central can help farmers assess demand, before the livelihoods of farmers are on the line. Lastly, farmers often participate in CSAs in conjunction with other forms of direct markets, such as farmers' markets or selling their good through food hubs. Therefore, pursuing these options in the future, when feasible, can also help to further the economic security of farmers.

Appendix: Supplemental Figures

Principal Operators by Age Group, 2007 and 2012



Source: USDA NASS, 2012 Census of Agriculture.

*Statistically significant change.

Figure 5: Increasing Average Age of Farmers (USDA, 2012)

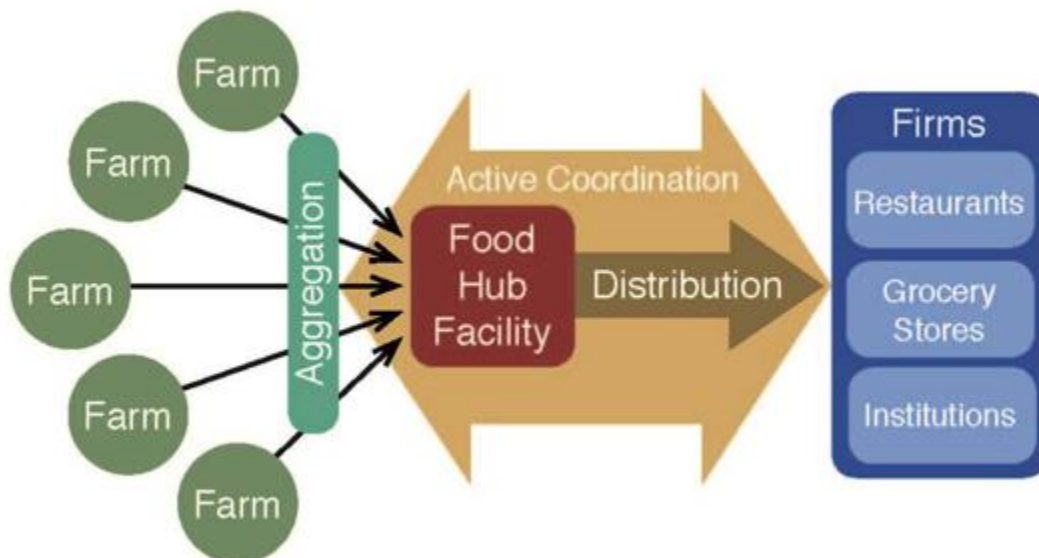


Figure 6: Structure of a Food Hub (UGA, 2015)



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Why Farmers Markets?

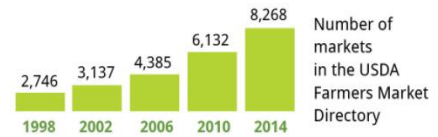


Figure 7: Benefits of Farmers' Markets (FMC, 2015)

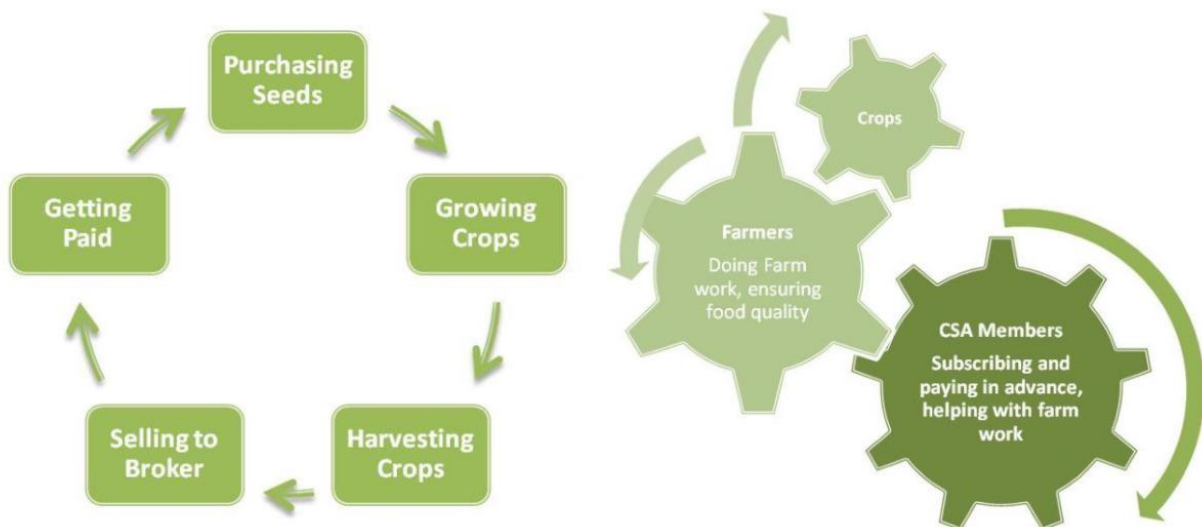
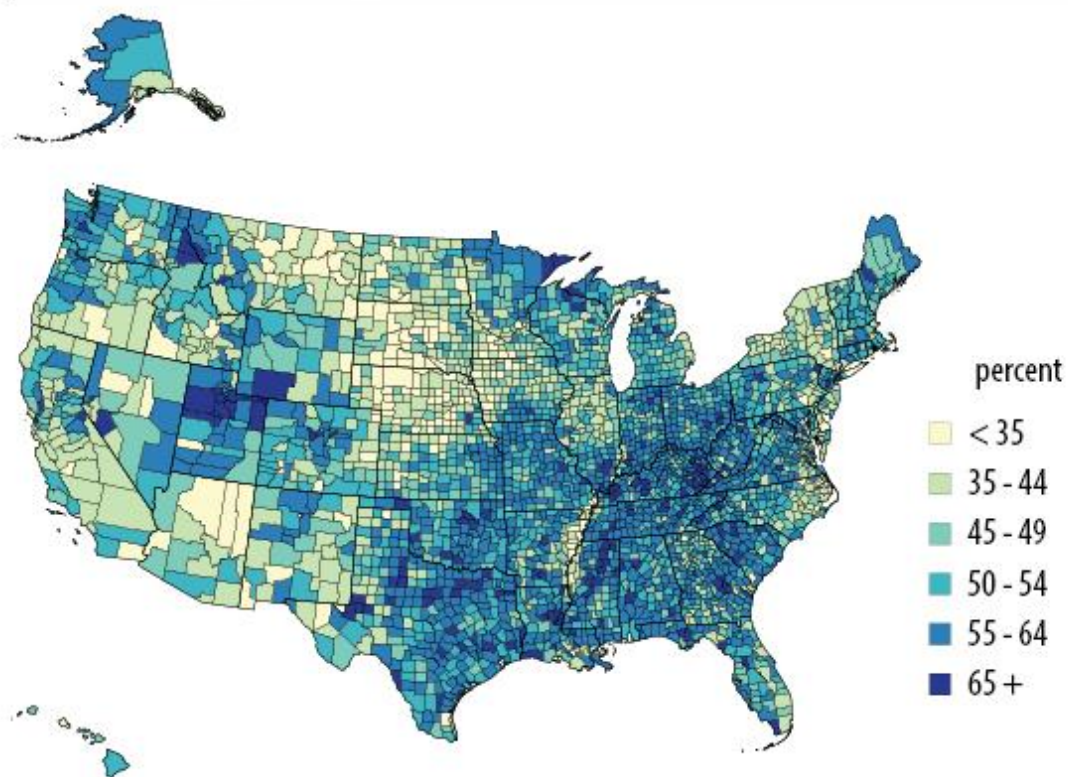


Figure 8: Traditional Farming Model vs. Community Supported Agriculture (CSA) Model (Zhao, 2011)

Farms with Principal Operator whose Primary Occupation Is Not Farming, by County, 2012



Source: USDA NASS, 2012 Census of Agriculture.

Figure 9: Majority of Farmers Have Occupations Other Than Farming (USDA. 2012)

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