Market Research

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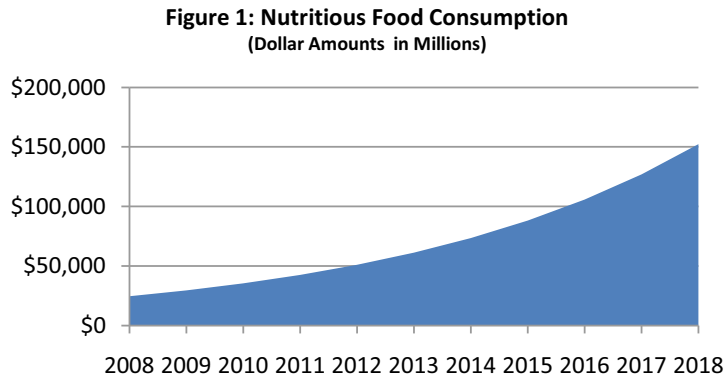
I. Executive Summary

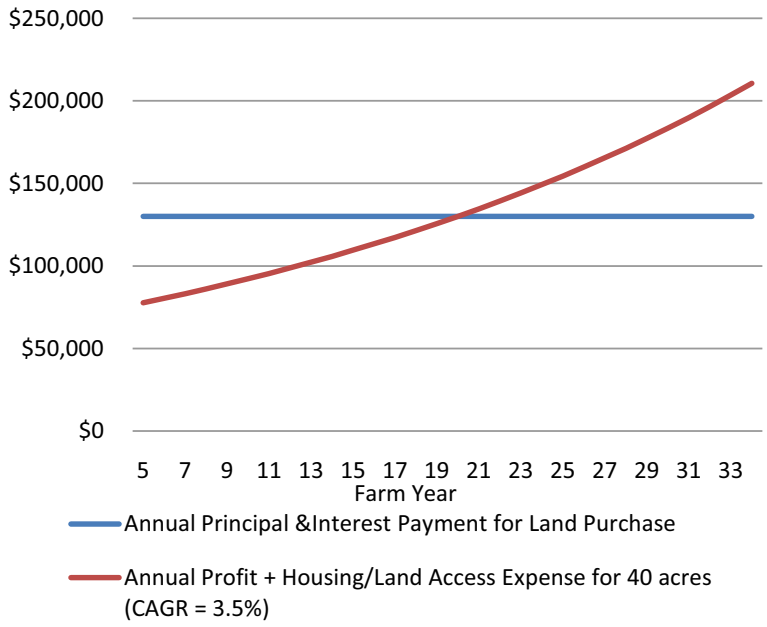
This research report explores the equity creation options for farmers practicing sustainable agriculture in Southeastern Pennsylvania. For sustainable agriculture to succeed in close-in urban areas, farmers must align their interests with the interests of landowners, and they must adopt new business models that utilize their professional skills in farming operations. Given the prohibitively high cost of land acquisition, farmers should focus on capturing an equity value created through their farming activities.



The demand for nutritious food consumption is projected to grow at a rate of 20% annually over the next decade. In order to reap the benefits of this demand, sustainable farming operations must move to close-in urban areas where there is a large consumer base. Existing sustainable farms in close-in urban areas have been able to increase revenues and profits due to high demand from consumers, but these farms have had to sacrifice equity in the farmland in order to realize these profits. Farmers face intense competition from residential and commercial real estate developers for land access in close-in urban areas, and this competition unlike what occurs in rural farming areas.

The high cost of land in close-in urban areas threatens the traditional business model of farms thereby prohibiting farmers from gaining access to land while also making a profit and creating an equity value. In order to make a profit, farmers are forced to either increase their prices and output per acre or find ways to cut costs in other areas. Farmers have been dealing with the high cost of land in close-in urban areas by cutting out their equity stake in the land that they farm. In comparison, rural farms utilize both owned and leased land, and are able to gain an equity interest in the land that is owned. This equity can be cashed out or bequeathed at death, and it is an attractive element of the rural farm model. However, as sustainable farmers have moved to close-in urban areas, they have given up this equity interest in order to afford access to close-in urban land.

Figure 2: Annual Cost of Purchasing a 40 Acre Farm

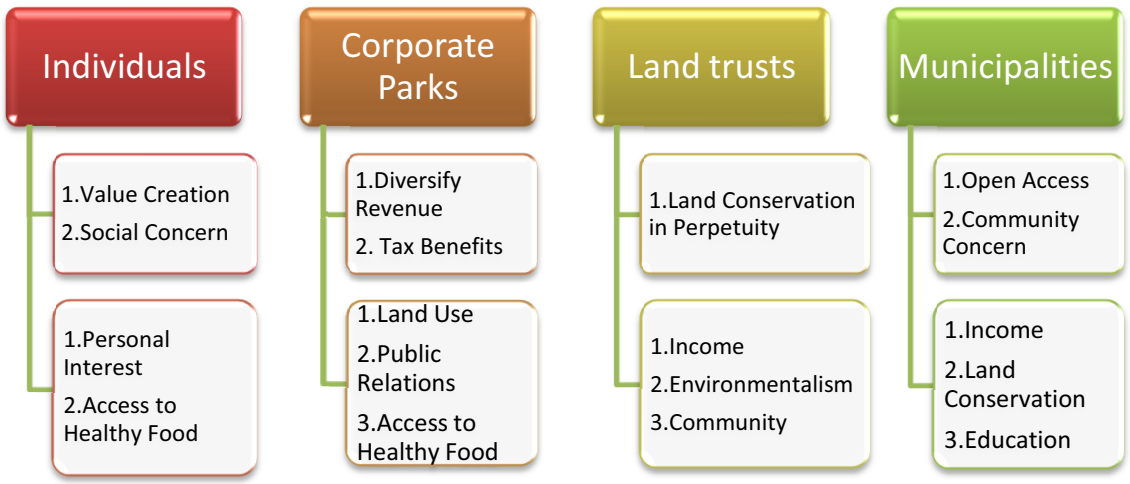


The economic benefits of sustainable farming are comprised of revenue from farming operations, Pennsylvania Agricultural Easements, and various tax benefits. By year five, a farm's operating revenues are producing steady profits, and can be relied upon as an economic benefit. The Pennsylvania Agricultural Easement program also pays out an economic benefit when a landowner agrees to sell the State an agricultural easement. Finally, various tax benefits such as the charitable contribution deduction and the Act 319 program result in a net economic benefit for landowners who allow a sustainable farm on their land.

Land in Southeastern Pennsylvania is available. The potential exists for sustainable farmers to partner with different types of landowners such as land trusts, individuals, municipalities and corporate parks. In order to do so, these farmers must align their interests with the landowners so that there is mutual contribution and benefit. Potential investors are also interested in providing capital to sustainable farming operations as a source of diversification, steady cash follows, and an outlet for social good.

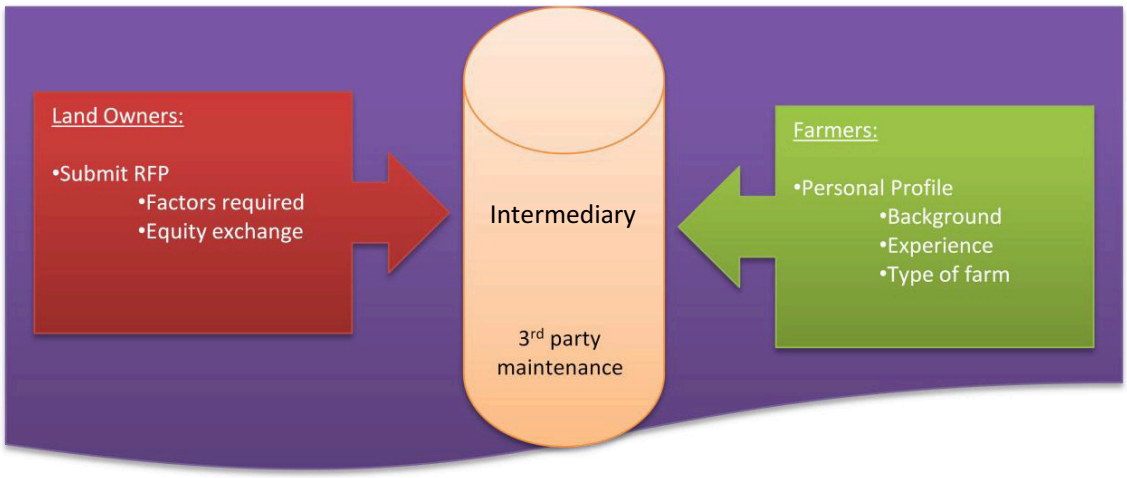
The increasing demand for locally grown food and the insufficient supply has made sustainable farming an attractive and appealing venture. Many landowners are progressive and try to ride the wave of the current trends in the food industry in order to be a part of the growing market. Identifying the types of landowners is essential because it is important to align the interests of the farmers with that of the land owners so as to reach an agreement about the use of the land. Landowners can be categorized as individuals, land trusts, corporate parks and municipalities. Landowners that are interested in sustainable farming have interests and motivations with regard to sustainable farming and the use of their land. Their primary and secondary motivations vary widely as shown in the chart:

Figure 3: Landholder Motivations



In order to farm close-in urban land while making a profit and gaining an equity interest, farmers must adopt new business models and align their interests with the interests of current landowners. The formation of an intermediary could help in aligning these interests, connecting farmers with the landowners, facilitating agreements, or acting as a guarantor.

Figure 4: The Intermediary



Traditional farms are composed of two business models: farming operations and asset speculation. The first model, farming operations, allows a farmer to gain revenue and profit from ongoing farming operations. The second model, asset speculation, involves the purchase of land and allows the farmer to gain equity if the land's value appreciates. The combination of these two business models is not necessarily advisable, and, where land is prohibitively expensive, farmers must remove asset speculation from their business model.

Results of an online survey to PASA members returned some interesting facts when results of close-in farms were compared to those of rural farms. Only six of fifty two respondents are located in close-in urban areas in Southeastern Pennsylvania. As shown in Table 1 below, the percentage of leased farms is higher in close-in urban areas.

Table 1 Type of Land Access by Geographic Location (Online Survey Results)

	Rural	Close-In	Total
Combination Lease/Own	20%	33.33%	21%
Lease	8%	33.33%	12%
Own	72%	33.33%	67%

A deeper review of the survey data showed that the owned farms in close-in urban areas were acquired through familial ties. Fifty percent of the close-in farms are under an agricultural easement compared with only 22% of farms in rural areas. Generally, farms in each geographic region pay between 0% and 20% of their annual revenues for access to land regardless of whether it is leased or owned. However, data from the survey , as well as from interviews, suggests that revenues from close-in farms are much higher, meaning they are paying more for access to land. Using limited revenue data, close-in farms generate $12,000 to $20,000 per acre annually, compared to only about $2,500 per acre annually for rural farms. Notably, revenue data from close-in farms shows that they are primarily crop farms, whereas rural farms are generally mixed and tend to include livestock operations that require more land for grazing, etc.

There are ways in which a farmer can gain equity without engaging in asset speculation. A farmer can replace asset speculation with a farming partnership that allows the partners to gain equity in the partnership itself. A farmer can also purchase the perpetual right to farm land owned by someone else. Both of these options create equity for the farmer without requiring the ownership of the farm land. As these options require the farmers to farm land that is owned by someone else, farmers must be able to form land access agreements with landowners in close in urban areas. Forming these agreements will require

farmers to provide value to the landowners which will be a combination of lease payments, tax benefits, and unaccounted social benefits.

II. Introduction

The Enterprise Management Consulting Practice (EMC) at the Fox School of Business assembles MBA students, faculty and senior executives into teams that provide consulting services to clients. These teams engage in helping business and community leaders solve their most critical strategic challenges. The EMC contributes to business, economic and social development by combining faculty and business leader expertise with MBA student skills, effort and creativity to provide high-quality, research-driven strategic support to some of the most innovative and influential start-ups, corporations and nonprofit organizations in the region and across the world.[1]

The Pennsylvania Association for Sustainable Agriculture ("PASA"), which was established in 1992, is a non-profit, member based organization whose focus and passion is to transform agricultural and food systems in Pennsylvania and beyond in a way that makes its farmers and their farms more viable, improves the quality of the land and restores the health and wellbeing of the consumers.

A. PASA Project Description: Affordable Land Access & Equity Creation

Traditionally, equity has been created for farmers through the owning of farmed land. PASA seeks to develop an alternative to this traditional financial model and to explore strategies for credit acquisition where land ownership is not available as a source of collateral. This alternative to the traditional family-owned farm model is needed because sustainable farming is moving to close-in urban areas where the cost of land prevents ownership and the land is often provided by or leased from conservation groups, office campuses, municipalities, or individual inland owners. This report explains the possibility of

an alternative model by examining close-in urban farming in Southeastern Pennsylvania.

PASA seeks to create a financial model that will enable farmers to realize an equity value when farming land that they do not own. The lack of an equity model for farmers farming land that they do not own constrains the further development of sustainable agriculture. Traditionally, ownership of the land is necessary to create an equitable interest for farmers. Unfortunately farmers do not own and cannot afford agricultural land in close-in urban areas. Farmers must negotiate with land trusts, municipal authorities, corporations or private individuals for land access.

In close-in urban areas, there are farmers willing to farm and land owners willing to grant farmers access to their land for farming, but there is currently no widely used mechanism that provides farmers with equity creation while also meeting the needs of the landowners. Sustainable agriculture requires long-term commitment from farmers, and, to date, the mechanisms used by farmers to gain access to close-in urban land have been limited to leases that do not necessarily protect their long-term interests or reward them for the improvements their work brings to the leased property.

B. Methodology

1. Environmental Analysis

Industries are embedded in a wider macro environment that can significantly impact the competitiveness of industries and the players within the industries. Any strategic analysis begins with the environmental analysis, which is comprised of social, technological, economic, ecological, and political and legal aspects. An environmental analysis of the sustainable agricultural industry reveals that the market for locally grown food is attractive and growing at a rate of 20% annually, indicating that there is an increasing demand for sustainable agriculture. Furthermore, there is a potential for sustainable farming to produce

increased secondary benefits due to the technology applied to sustainable farming operations. (Appendix A)

2. An Analysis of Industry Drivers and the Value Chain

Identifying and categorizing the key drivers is essential in ascertaining the critical questions that have to be answered and forms the basis for understanding the overarching questions surrounding sustainable farming and farming practices. In addition, analyzing industry drivers aids as a guidance tool in answering the pertinent questions about sustainable agriculture. The value chain analysis is particularly important in sketching the processes and the players at various levels in the sustainable agriculture value chain. It is also used to identify potential sources of economic advantage in sustainable agriculture operations. (Appendix B)

3. Stakeholder Analysis

i. Interview Notes

Interviews with land owners and farmers were a major source of information collection. Secondary research confirmed the four types of land owners namely individuals, land trusts, corporate parks and municipalities. Interviews were conducted with different types of land owners to identify the special and particular needs of the land owners regarding expected return from their land and their interests in sustainable farming. These interviews helped in confirming the key findings and key insights that are necessary in developing a financial equity model for value creation. Additional information was also gathered in the interviews that helped in further expanding our understanding of sustainable agriculture. (Appendix C)

ii. Survey Results

Surveys were used to gather further information from farmers concerning their interests in sustainable farming. Surveys were conducted to understand the interests of farmers and land owners in terms of current and expected return on investment, the extent of leasing or purchasing of land for sustainable farming, the farmers' perspective on land access, and general census type data such as location, number of employees, types of farms, farm revenues and financials to be used in projections. (Appendix C)

III. Findings

A. Key Insights

Our research identified several key insights that indicate that an increase in the number of sustainable farms in close-in urban areas in Southeastern Pennsylvania is feasible. While a number of factors discussed as key findings play a role in driving this growth, understanding the key insights, addressing the challenges, and capitalizing on the positives will be critical in achieving successful growth.

Undeveloped land in Southeastern Pennsylvania is prohibitively expensive for startup farms to acquire. The monthly mortgage cost of land in per acre terms is more expensive than what a successful sustainable farmer can afford to pay. (Appendix E.3) While potential exists under certain circumstances, such as generous landowners providing land at below market rates, a fee simple ownership interest is not a viable option for farmers. The inability to own farm land is an intuitive hurdle to equity creation, but this hurdle can be overcome by engaging in a strictly professional business model. Startup farmers must be flexible enough to adopt business models that do not include an ownership stake in the land that they farm. Farmers can be successful and gain equity through farming operations in Southeastern

Pennsylvania by leasing land. This is a critical insight as is discussed later in the report as farming is two business models, that of the profession of farming and that of asset speculation.

While land acquisition is expensive, the unaccounted benefits of sustainable agriculture, such as the non-economic factors of producing "healthy food", doing "social good", and other landowner interests, such as land conservation and environmentalism, make land access more viable. A number of sustainable farming operations in Southeastern Pennsylvania have succeeded because these unaccounted benefits have helped form relationships and businesses with willing landowners. The potential exists to continue leveraging these benefits due to the seemingly large number of landowners interested in having sustainable farms on their property and committed to receiving these unaccounted benefits.

Sustainable farmers can also provide significant monetary benefits to landowners who have farms on their property. These benefits stem from government sponsored programs such as the Growing Greener Bond program in Pennsylvania that allows for purchasing agricultural easements from landowners, conserving land for farming, and allowing the landowner to sell the property in the future. By selling agricultural easements to the state, landowners are able to incur large tax benefits through a charitable donation deduction. As a final monetary benefit, landowners are able to generate cash flows through land and home leases and profit-sharing from farming operations.

For startup sustainable farmers to penetrate the market in Southeastern Pennsylvania, they must align their interests with the interests of landowners. Successful relationships between Southeastern Pennsylvanian landowners and sustainable farmers are based on "aligned interests", such as a vision for the farm, land conservation, healthy food, or some other shared interest. The aligning of interests between the farmer and the landowner is

necessary if landowners are going to allow farmers affordable access to land. Affordable access to land is critical to a sustainable farm's long-term success. The aligning of interests between landowners and farmers will also create talking points and business plan ideas, which will help form strong farmer-landowner relationships by conveying the benefits of farming to each party.

B. Key Findings

1. Demand for Nutritious Consumption Is Growing

Growth rate of demand

Since the motivations for sustainable agriculture consumption are similar to the motivations for organic consumption, we use the growth rate of organic food as an indicator for the sustainable agriculture industry. The annual growth rate for organic consumption is estimated at 20% per year for the next decade, compared to 1% for the overall food industry, which indicates that this is a fast growing market.[2] Additionally, according to data from the 2009 Organic Industry Survey by the Organic Trade Association, U.S sales of organic food and non-food products grew from $1billion in 1990 to $20 billion in 2007 and reached $24.6 billion in 2008. This indicates growth of 17.1% in 2008. Of the $24.6 billion, organic food sales accounted for $22.9 billion (a growth rate of 15.8%) and organic non-food sales accounted for $1.648 billion (a growth rate of 39.4%). In 2008, total organic sales accounted for approximately 3.5% of overall food product sales in the United States.[3] Organic food is the most significant trend in agricultural consumption.[4] Compared to conventional food, the sustainable agriculture industry is fast growing.

Social and economic impact on demand

Social and economic factors are the two most important drivers for the high growth trend in nutritious consumption. Recent trends in consumer behavior suggest a preference for

consuming food products that are produced using sustainable agricultural practices. According to the definition from United Nations, sustainable productions and consumptions refer to "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations." Currently consumers are increasingly concerned about environmental and social issues, and are willing to act on those concerns. A global survey conducted in 2007 in association with Aegis, and repeated in 2008 in association with BBC World, confirmed that consumers in most countries are becoming more aware and willing to act on environmental concerns. In the United States, 80% of consumers professed a willingness to act on environmental concerns, compared to 57% in 2007.

The extent of premium pricing for organic products varies according to the type of product and location, but any premium reflects a short supply in the market and higher production costs.[5] Consumers are increasingly willing to pay a premium for locally produced food, which is usually perceived as a high end product possessing the qualities of being organic, fresh and better tasting. Purchasing patterns indicate that these shoppers are not price sensitive, but instead seek a good experience. Also, frequent organic consumers are less likely to change their habit of buying premium food due to economic downturn.

A study conducted by Ohio State University reveals that shoppers at farmers' markets are willing to pay almost twice the price for fruits and vegetables cultivated in local farms compared to retail grocery shoppers. The study also suggested that all shoppers would spend more for guaranteed fresh produce. These buying patterns favour food produced by small local farms as compared to mass produced agriculture.[6] Farmers that distribute locally can take advantage of enhanced revenues due to the enhanced demand for local, fresh food.

Locally grown food travels fewer miles compared to that from conventional agriculture. Produce loses more nutrients the more time there is between the harvest and the consumption. Locally grown fruits and vegetables contain more nutrients because they are picked at their peak freshness, transported shorter distances and generally sold directly to the consumer. Due to the reduced travel, sustainable agriculture increases food nutrient density and reduces toxic load.[7] Individuals are attracted to organic food because of these health benefits. Claims of superior flavor, superior nutrition, or enhanced food safety are most relevant for hedonistic consumers.

Large scale industrialized organic farms that cater to global markets are being setup as a response to the increase in consumer demand for organic products. Locally grown sustainable agricultural products are also a part of this market. In terms of competitive balance, there is an additional trend in "locavore," as shown by an Empire State Poll. The term locavore which combines "local" with "omnivore" or "herbivore" was named the 2007 Word of the Year by the New Oxford American Dictionary, referring to residents who try to eat food grown or produced within a 100-mile radius.[8] These locavores believe locally grown food is important enough for them to go out of their way to get it. This locavore lifestyle helps improve the growth of farmers' markets, which increased nationwide from 1,755 in 2006 to 4,386 in 2007.[9]

Local food serves as an important economic development factor. In addition to the high nutrition levels and high-quality, sustainable agriculture also brings economic benefits to local communities and regions. The main economic impact is the stimulus to the local economy. Buying local food from farmers' markets increases farmers' income, creates new jobs, and re-circulates money within the community.[10] Many farmers are poor and some are becoming poorer. A primary reason is unequal land distribution, where small farmers have little land security or access and lose a large part of their income to other landowners.[11]

Sustainable agriculture brings a higher and fairer return for farm products by selling directly to the public and cutting out the cost of distributing through intermediaries like wholesalers and retailers. Sustainable agriculture increases involvement in the local community and the opportunity to respond directly to consumers' needs.[12] According to the report by the Maine Organic Farmers and Organic Farmers and Gardener's Association, farmers can gain an increase of 5% in income if consumers spend 1% more on buying locally grown foods. 90% of the amount spent on local produce goes directly to the farmer.[13] Selling local can also increase the ability of farmers to pay for equity due to the reduced transportation cost. Buying local has a greater multiplying effect on the community, boosts overall income, and increases the amount of economic activity, creating more jobs.

Sustainable farming creates better health conditions for farm workers. Traditional farm workers, who currently apply pesticides, inhale these toxic fumes from tilled fields, and drink polluted ground water. Sustainable agriculture requires less pesticide use, which results in ecological benefits, brings benefits to the environment and preserves wildlife.

Sustainable farming offers many other benefits. Local communities are becoming more concerned about the way they use land and view sustainable agriculture as a responsible use of the land. Farmers who practice sustainable agriculture, especially family farmers, tend to have a great passion for the land on which they operate and are more concerned about the environment. Sustainable farmers tend to ensure the preservation of green space within the community and help support small businesses by purchasing goods and services produced locally within their communities. Finally, local communities find a direct correlation between enhanced local production and enhanced democratic values in their communities through active civic participation. Sustainable farming preserves an important connection between consumers, their food, and the land upon which this food is produced.

Supply

Sustainable agriculture usually operates on a small scale. From a supply perspective, there has been an increase in small farms in the United States. [14] According to the 2007 Census of Agriculture, there were 18,467 more small farms in 2007 than in 2002. The growth rate for small farms was about 1% each year from 2002 to 2007. Small farms account for 91% of all farms in the United States.[15] However, with the growing trend for consumers buying locally produced organic food, the demand is out pacing the supply. A variety of locally produced food farming is necessary to meet the growing demand.

Insufficient supply for CSA Members

CSAs are unable to keep pace with the demand. CSA is community support agriculture, which is a system that consists of a community of individuals who pledge support to a farm operation so that the farmland becomes, either legally or spiritually, the community's farm, with the growers and consumers providing mutual support and sharing the risks and benefits of food production. Typically, members or "share-holders" of the farm or garden pledge to cover the anticipated costs of the farm operation and farmer's salary. In return, they receive shares in the farm's harvest throughout the growing season, as well as satisfaction gained from reconnecting to the land and participating directly in food production. Members also share in the risks of farming, including poor harvests due to unfavourable weather or pests. By selling directly to community members, who have provided the farmer with working capital in advance, growers receive better prices for their crops, gain some financial security, and are relieved of much of the burden of marketing.[16]

The CSA model is beneficial to both farmers and individual consumers. Farmers are paid early in the season, which can help cover operating costs and manage cash flows. The regularity of the payment schedule also allows for a more stable income. This arrangement

also allows consumers to interact with the farmers and learn more about the importance of local food.

The extent to which growth in demand outpaces growth in CSAs can be seen at [redacted] in Chester County Pennsylvania. They have 150 CSA members and 170 people on a waiting list for 2010.[17] Also, at [redacted], with 22 acres in production in Bucks County, they have 210 CSA members now but expect more CSAs to join in the future and are looking for ways to expand their farm to meet the demand.[18] The CSA model has been a success for farmers since it started, and, due to the advantages of this arrangement, there is a growing demand that sustainable farmers must begin to meet.

Intense Competition from Industrial Farming

Though the demand for locally grown food is soaring and sustainable farming is a big business now, there remains intense competition from industrial farming due to sustainable farming's issues with lands access and costs. The challenge for sustainable agriculture is that it must move to close in urban area to sell directly to end consumers, while conventional industrial farming can operate in rural areas where land costs are cheaper and is more easily accessible. Sustainable agriculture has to face competition from developers for land use and the return cannot outperform the return for commercial development which is about 20%.[19] Additionally, locally grown food is usually small scale and more expensive compared to the large scale of industrial agriculture that can offer lower prices to customers.

2. The Cost of Land Is Greater Than the Resources That Farmers Have To Spend On Land

Equity

The cost of land access is a primary barrier for sustainable farmers. To estimate the land costs in Southeastern Pennsylvania, we used data from Century 21 listings for undeveloped land plots larger than four acres in Montgomery, Bucks, Delaware and Chester

Counties.[20] The data shows that the average cost of an undeveloped acre in Southeastern Pennsylvania is $ 45,200 with a range from $10,600 to $230,000 depending on the location of the land (Table 1). For most farmers, $45,200 per acre is prohibitively expensive. Economic insecurity is the main concern for young farmers entering into farming.[21] Additional financial hurdles include access to capital and other resources. The lack of capital for the purchase of additional land and equipment is a common issue faced by young farmers.

3. Farming Is Two Business Models

Farming is composed of two business models: farming operations and asset speculation. Both components add value to stakeholders, but each component has unique key success factors and operating environments. It is very important to understand these models in order to create appropriate financial solutions for sustainable agriculture.

i. Model #1: Asset Speculation

Asset speculation is the first model in farming. From this perspective, traditional farming is an activity that involves land price speculation. Like other asset management tools, traditional farming is capital intensive. According to our research, in the Southeastern Pennsylvania region, it costs $1.8 million to purchase a 40 acre undeveloped plot, which is a medium-sized sustainable farm. In 2009, the household income for an average family farm is forecast to be $76,065[22]. Land is prohibitively expensive for farmers, and they must rely on external funding resources if they want to own the land.

In a pure asset speculation model, potential professional investors have specific motivations. First, appreciation is expected by these investors. Investors believe that the value of land will increase and new equity will be created by holding the land. They also assume that the land can be sold at a higher price later and thus bring decent profits for investors. Diversification is another major motivation for people to invest in land. Compared with

stocks, commodities and business, land investment is considered low risk. Land is the safest investment given the limited amount of available land and constant population growth. Finally, land gives the investors a pride of ownership after investors purchase lands. Investors can inhabit land, rent it to others, use it recreationally, or whatever else they want as long as they are following the local laws and zoning restrictions.

Sustainable agriculture has its own unique attributes with regard to asset speculation. Farmers buy land for reasons other than land appreciation. Farmers treat ownership of lands as security. During our interview with farmers who do not own the land, they expressed their worries of losing the access to farming in the future. Owning the land makes them feel more secure. They consider this land as a place to call home. However, farmers lack expertise in assessing the likelihood that a parcel will increase or decrease in value, and will not always make decisions that are economically beneficial.

ii. Model #2: A Profession

A profession is the second model in farming. A profession is a vocation based upon specialized knowledge and training. Professionals have a high standard of professional ethics, behavior and work activities and they have passion for a particular type of work. A professional has long-term security in his or her specialized knowledge and skills, not the physical assets of the business. For example, attorneys or accountants do not usually own the physical office building where they conduct their business. Their skills are the essential and core assets for professionals. Academic qualifications and specialized knowledge are the two main criteria for a professional. A professional usually needs approval or certification from a professional organization such as an attorney with the American Bar Association or a doctor with the American Medical Association.

Sustainable agriculture farming is a profession because it has the same attributes as other professions. Farmers have specialized knowledge regarding crop rotation, soil enrichment, and product distribution. Farmers need some physical assets to conduct farming activities but do not necessarily need to own these physical assets. What farmers need is only the access to assets such as land and equipment. Partner aggregation, another norm among professionals, can be achieved through co-ops in sustainable farming. **Sustainable farmers are different compared to other professionals** such as lawyers and doctors because sustainable farmers do not require a license from a professional association. Also, for sustainable farmers, their products must grow out of their assets (the land), whereas other professionals are more mobile and less reliant on their office space.

For professionals, equity creation is separate from asset speculation. For asset speculation, new equity is created when assets appreciate and remains in the physical assets themselves. For professionals, partner aggregation is necessary for equity creation. Partner aggregation increases the number of clients and diversifies areas of specialization. The new equity is created through the business' profit growth and does not exist in any physical asset such as land.

Farmers gain revenue and profit from ongoing farming operations and gain equity by purchasing land in the hope that its value will appreciate. Where land has been devalued due to an agricultural easement, these two business models remain viable for sustainable farmers in close-in urban areas; however, where land remains prohibitively expensive, **farmers must remove asset speculation from their business model.**

There are ways in which a farmer can gain equity without engaging in asset speculation. A farmer can replace asset speculation with a farming partnership that allows the partners to gain equity in the partnership itself. A farmer can also purchase the perpetual right to farm land owned by someone else. Both of these options create equity for the farmer

without requiring the ownership of the farm land. As these options require the farmers to farm land that is owned by someone else, farmers must be able to form land access agreements with landowners in close in urban areas. Forming these agreements will require farmers to provide value to the landowners which will be a combination of lease payments, tax benefits and unaccounted benefits.

4. Land & Capital Availability

While it is prohibitively expensive, land for sustainable farming is available. Whether owned by individuals, land trusts, corporate parks, or municipalities, unused land is available and landowners are open to operating a sustainable farm on their land. The degree of willingness and skepticism of starting a sustainable farm varies by the type of landowner but nonetheless the potential exists to partner with each landowning segment. It is critical for farmers to have or create aligned interests with the landowners for successful land access agreements to be reached. Furthermore, select investment groups and individual landowners are interested in providing capital for start-up farms and the expansion of existing farms. While each group has different interests, investment groups seek steady long-term returns and individual landowners are open to a variety of returns such as no interest payback, ownership of the farming operations, or profit sharing. Capital availability exists and the key will be working out details regarding the returns.

Counties in southeastern Pennsylvania including Bucks, Montgomery, and Chester have agricultural easement programs that preserve farmland in perpetuity. These programs are limited by the amount of funding they receive on an annual basis; however, each county plan indicates these programs will continue for a minimum of two more years increasing the amount of preserved farmland.[23] This is important for sustainable farmers who want to own

land as preserved farm land sells at a significantly lower rate than land that may be used for development.

With the collapse of the real estate bubble, farmers currently seeking land are facing less competition than in a bull market.[24] Also, land price increases have slowed and even decreased in some instances. Due to this macro-economic scenario, landowners may be willing to accept a reduced lease rate for allowing access to land, consider applying for an agricultural or conservation easement, and seek to create alternative capital returns, such as those provided by sustainable farming.

Individual Landowners

The individual landowner, which in most cases will be a high wealth individual, is the best option for a sustainable farmer looking for access to land. A number of successful, sustainable farming operations in Southeastern Pennsylvania, such as [redacted] are built on this type of partnership.[25] While no two land access agreements are exactly alike, farm operations are generally set up where the high wealth individual grants cheap (below market leases) or free land access to farmers. In many cases the farmland is already preserved under an agricultural easement. Notably, the landowners who grant access to sustainable farmers have strong beliefs in preserving farmland, maintaining farms in southeastern Pennsylvania, are passionate about sustainable farming, and are not driven by the economic rewards of successful farming operations or economic benefits derived from selling their agricultural easements to the county.

A number of individual landowners are in the process of identifying farmers to start a sustainable farm on their property. These individuals are interested in starting a sustainable farm in order to be part of a philanthropic, social trend. Starting a sustainable farm has become a new buzz at cocktail parties, highlighting the social trend of high wealth individuals to do social good[26].

Land Trusts

In theory, land conservation trusts and sustainable farming operations should have similar interests and be agreeable to forming relationships because of their sustainable passion and long-term vision for preserving land and eco-systems. While this theory has some support, some land conservation trusts have been formed for very different reasons than simply preserving land and may have complicated ownership or organizational structures that present obstacles in building relationships. Although some complications exist, flexible land trusts with open-minds, land trusts that could use extra income, and land trusts whose mission is to do more than preserve land, landscapes, or eco-systems, are potential partners for startup sustainable farmers in southeastern Pennsylvania.

There are at least two sustainable farms in Southeastern Pennsylvania that have operations on conservation trust land and have been successful to date.[27] While these arrangements were complicated and took significant time to finalize, future arrangements with land trusts are a viable option for sustainable farms.

Corporate Parks and Real Estate Developments

Some interest in sustainable farms has been identified among corporate and development land owners. For example, the Hankin Group had planned on incorporating a farm in a development in Chester County but ultimately the plans fell through for non-disclosed reasons.[28] While the benefits of locating sustainable farms on this type of land are solid, a number of barriers exist, some of which inhibit the long-term success of a farming operation.

A main driver in locating a sustainable farm in a corporate park or real estate development is having access to a large number of consumers, employees in the business parks and families or homeowners in a housing development. A secondary driver is that corporate parks and real estate developments are required to maintain a certain percentage of

green space, which varies by location. Unfortunately, the amount of green space required is generally small in regards to the total size of the parcel being developed and planners are capable of incorporating green space through a number of methods.

There are a number of limiting factors in locating a sustainable farm on this type of land. First, investors in real estate generally seek returns of 20-30%.[29] Additionally, developers would need to have land zoned for agricultural use rather than simply commercial or residential. The process of re-zoning land can be timely and costly and developers may not want to partake in this activity.[30] Finally, land available under this scenario is limited and constraints exist on the long-term use of land as a farm and on farm expansion (growth), especially in the business park scenario, where expansion of buildings over time is a threat to farm land use.

Capital Availability

There is interest from capital investors regarding sustainable farming.[31] Certain capital investors seeking to generate a steady, if not market level, rate of return have identified sustainable farms as a possibility. These investors are looking to sustainable farms for more than simply a cash return on investment; they also seek to diversify their portfolios with businesses that do social good.

Individual landowners have often provided startup capital for farming operations.[32] This startup capital has been necessary in the short-term success of farming operations. Furthermore, some landowners have been successful in generating profits for themselves through land leases that otherwise would not exist, farm income, money received by selling agricultural easements, tax benefits associated with the agricultural easement transaction, and tax benefits associated with Act 319, which lowers the property tax on agricultural land relative to non-agricultural land.[33] An example scenario of how a landowner provided startup capital to a farmer is provided in Table 1 below. Note that by including land and housing

lease costs to the landowners' cash flow, the initial loan is essentially recovered in Year 2. The landowner has generated otherwise unseen profits that would be expenses (e.g., housing and land mortgages).

Table 2 Landowner Cash Flows – Capital Provided, Repayment, and Lease

Year	0	1	2	3	4
Loan Balance	($55,000)	($55,000)	($35,000)	($15,000)	$ -
Land Lease ($300/acre/year)		$4,200	$4,200	$4,200	$6,630
Farmer Housing		$15,600	$15,600	$15,600	$14,400
Intern Housing		$14,050	$14,050	$14,050	$13,980
Loan Repayment		$ -	$20,000	$20,000	$15,000
Cash to Landowner		$33,850	$53,850	$53,850	$50,010
Landowner Cash Flows	($55,000)	$33,850	$53,850	$53,850	$50,010

5. Early Adopters Of Sustainable Farming Due To Unaccounted Benefits

Sustainable agriculture practices result in secondary benefits that are aligned with current global and cultural trends including climate change, ecosystem health and reductions in environmental contamination.

Sustainable agriculture plays a major role in carbon sequestration. Studies have shown that organic and sustainable processes increase soil organic matter (i.e., carbon) as well as nitrogen levels through diversification and rotation of crops, conservation tillage, and efficient nutrient management, which is unlike conventional farming practices that simply maintain the same amount of soil organic matter and nitrogen due to the use of chemical inputs (e.g., fertilizers) and monocropping.[34]

Carbon and nitrogen are key indicators of soil productivity and can be easily measured in analytical laboratories. Thus, a simple method to project value added through sustainable farming would be to record analytical soil parameters over time. Additionally, estimates of carbon sequestration may be made using the same data (i.e., soil carbon levels or

organic matter). Carbon sequestration can contribute varying amounts of value through carbon credits depending upon the size of the farm. Sustainable agriculture has also been shown to vastly improve local ecosystems because of the methods used in sustainable farming and its underlying principles of improving human and ecological health by using natural processes.

Sustainable agricultural practices generate virtually no environmental contamination. These practices focus on natural processes and cycles and use chemical inputs such as pesticides, herbicides, or insecticides only when necessary, if at all. One example of sustainable practices is that surface water run-off from farms is cleaner and has fewer suspended solids than its non-sustainable counterparts. More directly, sustainable farms use little if any chemical inputs, whereas conventional and industrial farms in the U.S. use 945 million pounds of pesticides, herbicides, and insecticides each year, up from roughly 50 million pounds when these chemical components were first introduced in 1948.[35]

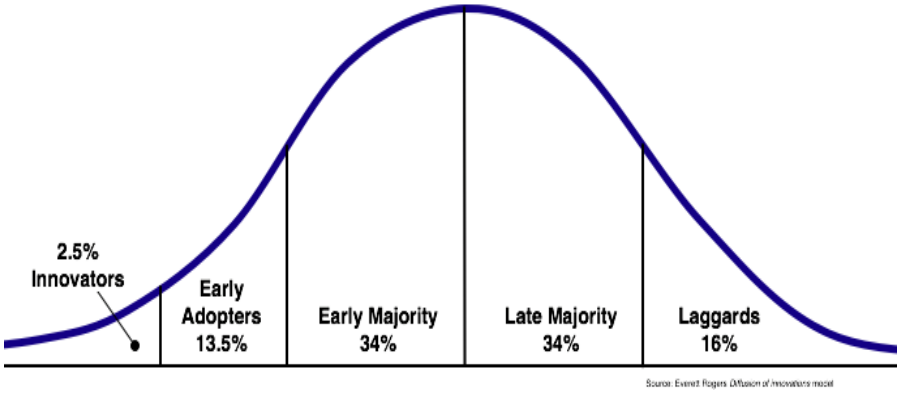
Currently the secondary benefits of sustainable farming such as carbon sequestration, soil improvement, and ecosystem enhancement are not being valued highly by the market. For example, purchases of carbon offsets have been ongoing since 2003 on the Chicago Climate Exchange (CCX); however, farmers have yet to significantly participate primarily because of the lower returns. In Pennsylvania, estimates predict 0.6 tons of carbon sequestered per acre of soil per year and the maximum trading price of carbon offsets on the Carbon Credit Exchange (CCX) has been only about $7.35 per ton. For a 40-acre farm, this would yield only about $293.60 annually, which is a mediocre amount. Although the secondary benefits arising from sustainable farming are not being perceived highly by the market at this point in time, their value is rising steadily; this is primarily due to the growing awareness among people driven by a sense of social responsibility.[36]

An increasing number of landowners are willing to accept a reduced lease rate from sustainable farmers in return for these unaccounted benefits. It is essential to identify these early adopters of the secondary benefits of sustainable farming in order to realize and capture value. This adoption behavior is analogous to the adoption of a new technology, which is indicated in the Technology Adoption Cycle shown in Figure 1. The Technology Adoption Cycle describes the adoption or acceptance of a new product or innovation, according to the demographic and psychological characteristics of the defined adopter groups.[4] This adoption cycle, adapted to sustainable farming, is based on the principle that people do not adopt new ideas at the same time. Some people adopt ideas when they are first introduced; others wait for a long time; while some never adopt. Based on these differing adoption characteristics the various groups identified are as follows:

- Innovators – Tend to have larger land areas, know the benefits of sustainable farming, be more prosperous, and be more risk-oriented
- Early Adopters – Tend to be younger, more educated, and community leaders
- Early Majority – Tend to be more conservative but open to new ideas, to be active in the community, and have a great influence on neighbors
- Late Majority – Tend to be older, less educated, fairly conservative and less socially active
- Laggards – Tend to be very conservative, have smaller land areas and less capital, be older, be less educated.[37]

A first step in identifying these early adopters would be to identify the total number of parcels in the various counties in Southeastern Pennsylvania having agricultural easements. Nearly 4.26% of all parcels in the Montgomery County have an agricultural easement.

Figure 5: Technology Adoption Curve



Source: Diffusion of Innovations (Rogers 1962)

6. Landowners' Primary & Secondary Motivators

Identifying the types of landowners is important because it is necessary to align the interests of the farmers with those of the land owners so as to reach a mutual consent on the use of the land. Each landowner has unused land that sustainable farmers can try to access by offering benefits to both themselves and the landowners. Landowners can be categorized as individuals, land trusts, corporate parks and municipalities. Each landowner has different interests and motivations in sustainable farming or the use of their unused land. Their primary and secondary motivations vary widely depending on their interests in the land and their understanding about sustainable agriculture. There is no single ownership and financial model that applies to all landowners' primary and secondary motivations for using the land. For each landowner, sustainable farmers must use different models or mechanisms to approach landowners.

i. Individuals:

In general, the primary and secondary motivators for an individual landowner interested in sustainable farming are the easiest to align with the interests of a sustainable

farmer. An individual is motivated to allow access to a sustainable farmer because of social concern for issues such as environmentalism and community health and because of the income that can be attained from sustainable farmers.

Primary Motivators:

For individual landowners, unused land only creates value if the land appreciates and this value can only be realized after the sale of the land. When an individual landowner gives land access to a sustainable farmer, the land can be leased or rented, which would allow for value creation from land appreciation and from the generation of revenue through rental income.[38] Additionally, this income can be seen as diversified and helps reduce the risk of land devaluation.

Another value creation for individual landowners is tax benefits. When a land owner sells an agricultural easement, they can claim a charitable contribution deduction on their federal income tax return. One interviewee mentioned that he had charitable contribution deduction worth $7 million due to his sale of an agricultural easement on his 500 acres.[39] Property tax benefits can also be considered an economic benefit. This benefit arises when landowners sell an agricultural easement and the municipalities reassess the land as agriculture land. The reassessment decreases the property tax for this land due to reduction in the use of municipal services. For example, in Montgomery County, once the land is preserved for agriculture, the land owner's property taxes drop by 66%.[40]

Another primary motivator for individuals is a growing awareness of environmentalism and community health.[41] This concern drives individual landowners to favor sustainable farming. The feeling of doing good is achieved by improving land, water and the ecosystem. The promotion of the green movement and the common consensus that sustainable is beneficial to the ecological system and helps preserve the land inspires individuals to get involved in this enthusiasm for sustainable agriculture. Several landowners

interviewed expressed passion for the land on which they live. These interviewees have a commitment to land preservation. Individuals who actually have a sustainable farm on their land love the farm, love the land and want the healthy food available for everyone[42].

Landowners are also concerned about community health and a sense of community. By using land for sustainable agriculture, landowners build a good relationship with the community through CSA models for sustainable agriculture. Having farmland in the community also produces educational benefits. It helps people learn more about how the food they eat grows and adds farming as a recreational activity in the community.

Secondary Motivators:

Among the secondary motivators, the most common are personal interest in farming and the availability of and access to healthy food through sustainable farming. As explained earlier, the increased awareness regarding the environmental benefits of sustainable farming has begun to spark an interest among individual landowners. Also, landowner interest in the farming lifestyle has further motivated landowners to commit to sustainable farming.

The accessibility of healthy food also motivates individual landowners to invest in sustainable farming. The demand for nutritious consumption is soaring and currently people are more aware of the way their food is produced. Locally grown fruits and vegetables contain more vitamins and nutrients because of the system and operation of their harvest and because they are transported over less distance and time. The public is now more concerned about living longer and living better. Giving land to sustainable farming can satisfy this need and provide fresh fruits and vegetables for both the landowners and the whole community.

ii. Land Trusts

The motivation of land trust owners to get involved with sustainable agriculture differs significantly from that of the individual land owners. In contrast to the individual land

owners who are driven by land value creation, land trust owners look for land conservation in perpetuity. Social concern for environmentalism and community health are secondary for land trusts.

Primary Motivators:

Land trusts' motivation to preserve unused land from development is a key driver to adopt sustainable farming. As sustainable farming does not degrade the land but adds value by improving the quality of the land and the habitat of the wildlife, some land trusts consider sustainable farming to be consistent with the preservation of land from development.[43] Land trusts' desire to preserve land is consistent with the goal of sustainable agriculture to protect the environment. Sustainable farmers are dedicated to using less pesticide and toxic ingredients to grow fruits and vegetables, which not only causes less environmental damage, but further improves land quality through crop rotation and composting methods.

Sustainable farmers and land trusts should co-exist because both are dedicated to preserving land, open space, and natural processes that better the environment. Creating a synergy between land trusts and sustainable farms is a viable way to approach land trusts and reach a mutually beneficial agreement.[44]

Secondary Motivators:

Income from farming operations or rent revenue is a secondary motivator for land trusts in providing their land for sustainable farming. The source of funds for land trusts to buy conservation easements is usually from state and county bonds. If land trusts give land access via a lease, they have rent payments as additional income and are still preserving the land through sustainable farming practices. For land trusts, a lease rather than a sale is necessary under the conditions of the trust.[45]

Other secondary motivators include a commitment to environmentalism, the prevention of land development, carbon sequestration, and the improvement of water, land,

and ecosystem quality. Like individual landowners, land trusts are motivated by environmentalism. Land trusts are especially committed to protecting their unused land and benefitting the ecosystem. Sustainable agriculture is the way in which land trusts could be environmentally friendly and contribute to the well being of the ecosystem by leasing their land for sustainable farming.

A final secondary motivator is the concern for community health and educational benefits. By giving land access to sustainable farming, these benefits are brought to the community. People can buy fresh, nutritious, locally produced food while also being more aware of how their food is produced.

The challenge for sustainable farmers is that land trusts see it as necessary to educate farmers on stewardship and responsibility. Land trusts are concerned that many farmers mistreat the land by farming to the boundary of the land and waterways. So, to approach land trusts for land access, sustainable farmers have to notice this perception and adapt accordingly.[46]

iii. Municipalities / Townships

Primary Motivators

Two primary motivational factors for municipalities are ensuring open access and helping the community. Open space is a big priority for state, county, and township land grants. Municipalities ensure open access through various means including the creation of new zoning ordinances to help create more green spaces and the strengthening of existing ordinances to ensure that they consistently help in meeting the goals relevant to the maintenance of open space.[47] Municipalities further protect open access by working with other landowners to influence their decisions about land use and buying key parcels of land as they become available.[48]

Providing land for sustainable agriculture often faces a hurdle because the land being used is public land and people need to have access to it. Allowing one farmer to gain revenue from public land could be a possible barrier for the use of public land for sustainable agriculture.[49] For sustainable farming to be seen as consistent with the mission and goals of municipalities and townships, farmers must be able to convince municipal authorities that the educational and community health benefits along with the rental income are a suitable replacement for unfettered public access.

Municipalities and townships also work towards creating new jobs and boosting the local economy.[50] They do so by providing resources needed to support business growth and development and enacting regulations to encourage profitable activities such as farming. These policies are designed to not only help expand economic opportunity but also improve the overall wellbeing of the community, and sustainable agriculture is consistent with both of these goals.[51]

Preservation of the natural beauty, resources and the ecological systems is another driving factor for municipalities and townships. They employ tools such as conservation maps that outline wildlife habitats and natural resources within the township and implement land stewardship policies based on best management practices to ensure their preservation. Sustainable farms in adjoining areas complement these natural ecosystems because the processes used in sustainable agriculture, such as natural plant succession, stacking, and replication of natural patterns, results in less soil erosion and no release of chemical inputs thereby boosting the surrounding ecosystem.[52]

Secondary Motivators

Municipalities and townships are also driven by secondary factors such as education, land conservation and income. Municipalities employ a variety of communication channels such as newsletters, websites, and public meetings to educate the public about the benefits of

and the individual land owner's role in preserving and maintaining open space. Municipalities also utilize educational programs to teach landowners about the need to sustain or restore their surrounding ecological environment.[53]

Municipalities are also driven by the need to preserve agricultural land. Various programs and tools are used to encourage farming. Act 319 permits preferential property tax assessments to taxpayers who own land used for agriculture, and preservation programs allow the landowners to sell their development rights and sign conservation easements that prevent development in perpetuity.[54]

Stagnant or declining state revenue streams have imposed budgetary constraints on municipalities and townships and they now seek new sources of income.[55] Sustainable agriculture not only meets the motivations of municipalities and townships but also helps in providing a steady revenue stream in return for land access agreements.

iv. Corporate Parks

Primary Motivators

The two primary motivational factors for corporate parks regarding the use of land are increasing and diversifying revenue through increasing income and decreasing expenses. Providing land around corporate parks for sustainable agriculture serves as a great source for diversification of revenue. The revenue arising from sustainable agriculture serves as a complement to the primary source of revenue and is not correlated to the primary revenue source; however, the income derived from sustainable agriculture is unlikely to offset the opportunity cost of providing the land for developmental purposes. The return on development is approximately 20%, which is significantly higher than that from sustainable agriculture.[56]

When land is provided for agriculture, corporate parks reap tax benefits which come in the form of the charitable contribution deduction and a reduction in property taxes. Land provided for agriculture qualifies for lower property taxes as opposed to land used for real estate development.

Secondary Motivators

In addition to these primary factors, the secondary factors that drive corporate parks regarding their land use decisions are boosting public relations, utilizing unused land and providing employee benefits. Providing land for sustainable agriculture helps improve the company's reputation and goes a long way towards driving any particular company's 'green' initiatives. At the same time, this also helps in creating new jobs for the local population and is a great way of contributing to community involvement initiatives. Many companies are also concerned about Corporate Social Responsibility (CSR), which involves promoting the public interest by encouraging community growth and development and voluntarily eliminating practices that harm the public sphere at the same time. The ultimate goal is to incorporate public interest into corporate decision-making.[57] Sustainable agriculture helps companies achieve their CSR goals by continually renewing the quality of the land and the surrounding ecosystem and ensuring the long term security of natural resources.[58]

Most corporate parks are comprised of office buildings intertwined with patches of open space. As sustainable agriculture requires small areas of land, these unused patches of land are ideal for utilization. In addition, the revenue generated from sustainable agriculture increases and diversifies the developer's income. Although harnessing unused space for sustainable farming yields benefits, the time and expense of re-zoning land[59] combined with the nuisance of farming activities[60] can present potential barriers.

Finally, using corporate park lands for sustainable agriculture also helps in providing employees with a steady supply of healthy, nutritious, locally grown food. This not only

helps in contributing to the company's employee satisfaction initiatives but also helps in lowering the health insurance premiums for employees.

7. An Intermediary Is Needed

Both farmers and landowners have expressed a need for an intermediary that can serve as a liaison between the farmers and the landowners and help bridge the gaps.[61] Traditionally, farmers and landowners have found one another through word-of-mouth and informal contacts.[62] This method not only limits the available pool of farmers and landowners but also fails to acknowledge the alignment of interests between the farmers and the landowners on most occasions.

Many landowners have expressed a frustration with their inability to find qualified farmers and experienced farm managers. To remedy this inability, they see the need for an intermediary that can attract farmers from all over the country and not just Pennsylvania.[63]

Landowners have also expressed the need for an intermediary to help farmers with financial arrangements and planning; these are essential building blocks of most land access arrangements and are beyond most farmers' area of expertise.[64] The intermediary should not only help educate farmers on financial and business modeling but should also provide the farmer with a repository of valuable resources and contacts.

Farmers see an intermediary as offering the benefit of matching landowners with farmers. They believe alignment of interests between farmers and landowners is critical in forming a mutually beneficial relationship and an intermediary would be the right choice to provide a platform for matching farmers with landowners.[65]

Land is available in Southeastern Pennsylvania and landowners are constantly on the lookout for sustainable farmers. Qualified farmers are in high demand, and they need a place to market themselves. Sustainable agriculture associations have long advocated for the

benefits of sustainable farming and have played a great role in marketing it across communities. Now, an intermediary is needed to market qualified sustainable farmers to landowners in order to put farmers on the side receiving multiple offers.

For a minority of landowners, having an intermediary in a landowner-farmer arrangement is unnecessary because the landowner would prefer having a financial arrangement with the farmer directly and do not need the intermediary to guarantee a replacement farmer if the term of the lease is unfulfilled.[66] Some farmers have also expressed skepticism regarding the presence of an intermediary because they prefer to meet farmers through personal connections and word-of-mouth.

An intermediary would not necessarily need to get directly involved in arrangements between farmers and landowners, but it always has a role to play in bringing farmers and landowners together, in allowing them to do an initial screening of one another, and in maintaining a reservoir of resources.

8. Types Of Ownership & Land Access Agreements

i. Easements & Covenants

An easement is essentially the transfer of certain real property rights from one land owner to another.[67] An easement is the right of the owner of a parcel of land to use or control the use of another's parcel of land.[68] The easement requires that there be an estate with the power to use or control and an estate subject to such use or control.[69] Easements are generally created at the time that land is transferred, over the land that is transferred, by the transferor, and in writing (though they are often created without an express writing).[70] Easements can be for the benefit of a particular piece of property or for the benefit of a particular person.[71] Covenants are another type of agreement to do or not do something with regard to land, and may be real or personal.[72]

ii. Agricultural Conservation Easements:[73]

"An agricultural conservation easement is an interest in land, less than fee simple, which interest represents the right to prevent the development or improvement of a parcel for any purpose other than agricultural production. The easement may be granted by the owner of the fee simple to any third party or to the Commonwealth, to a county governing body, or to a unit of local government. It must be granted in perpetuity as the equivalent of covenants running with the land."

iii. Forms of Ownership

Fee Simple Absolute:[74] The complete and perpetual power to use, posses, and transfer land.

Fee Simple Determinable:[75] An estate that reverts to the grantor upon the occurrence of a specific event. Upon the happening of the specified event, the estate is transferred to the grantor with no other action necessary.

Life Estate:[76] An estate that remains for the life of the owner or owners of the life estate and then reverts to the grantor of the life estate.

Fee Simple Subject to a Condition Subsequent:[77] An estate remains until the happening of a specified event, at which time the grantor has the right and the power to terminate the estate. Unlike the Fee Simple Determinable, this estate requires the grantor to exercise his power.

Fee Simple Subject to a Condition Precedent:[78] An estate that does not vest in the owner until the happening of some event.

Lease:[79] The transfer of property for a limited period of time. Unlike other property interests, a lease, while subject to statutory limitations and requirements, is a creature of the leasehold contract.

9. The Economic Benefits Of Sustainable Farming

i. Farm Income

Income from farming operations can vary greatly among sustainable farms. One farm we encountered in our research yielded the farmer $450,000 each year after paying for all expenses and capital improvements;[80] however, most sustainable farms do not experience such lucrative returns. Our team looked at [redacted] in order to arrive at an average yield per acre (profit + land/housing expense + farmer salary expense) of just under $2,000 per acre after five years. This $2,000 would be available to farmers to pay for housing, land access, and long-term equity investments.

Income from farming operations is dependent upon many variables. In the early years of a farm, a great many capital improvements (i.e. wells, greenhouses, fences, etc.) are needed, and, as time goes on, capital improvements such as potato diggers become attractive as a time-saver.[81] While these and other factors can affect the year-to-year income from farming operations, a per acre income average of $2000 after the first five years is consistent with information gleaned from interviewing industry professionals.

ii. Pennsylvania Agricultural Easements

Agricultural easements may play a key role in creating affordable access to land for sustainable farmers because the easements reduce the value of the land by preserving it in perpetuity for farming use only. More importantly, for farmers wishing to own their farmland outright, land under an agricultural easement is a viable option because it sells for far less than market value. The following is an assessment of the agricultural easement process which identifies benefits to sustainable farmers and landowners.

iii. The Easement Process

Under the Commonwealth of Pennsylvania Agricultural Conservation Easement Purchase Program (aka Growing Greener I and II Bond Initiatives), implemented since 1988, counties in Pennsylvania have been able to purchase easements, sometimes called "development rights", from landowners thereby preserving the land as a farm in perpetuity. As of August 28, 2008, 3,634 farms totaling over 400,000 acres have had agricultural easements sold to the State. (Appendix D, Agricultural Easement Data, PA Dept. of Ag, Easement Summary). The price per acre paid for the easement has averaged $2,388/acre statewide; however, counties in Southeastern Pennsylvania show the highest price paid per acre. (Appendix D).

To qualify for an easement, land must meet certain criteria that include being part of an Agricultural Security Area, being a certain size tract, having certain soil quality characteristics, and having a certain amount of land being used for agriculture. If these requirements are met, the landowner may apply to have his or her land placed under an easement. Each year, applications are reviewed and a limited number of farms in each county are placed under easement; hence, development rights are sold to the state. The price paid by the State to the landowner is calculated using a number of criteria but is most simply explained as the development value of the land (appraised) less the value of the land as a farm (appraised).

Once under an easement, the land is conserved in perpetuity for agricultural uses only. The landowner still owns the land and may subdivide it under certain restrictions and may sell the land, which usually occurs at less than market or development value.

iv. Tax Benefits of the Easement Process

While the price of an easement paid to landowners should make up the difference in value of the land as a development or farm, often the price paid does not make up that difference. Under this scenario, where the landowner is not fully compensated for their land through the easement, personal income tax benefits for the landowner are created to make up for the loss. For example: if the development value of 1 acre was $30, and the landowner received $10 from the State for selling easement rights, and now that the land is preserved its new market value (for which the farm could be sold in the future) is $10, then the tax credit (or write-off due to capital loss) is based on the $30 - $10 - $10 = $10 given up to put the land under easement. Thus it is like a charitable contribution of $10 that a landowner receives tax benefits for.[82]

In Southeastern Pennsylvania, where the value of development rights is high, this unmet difference in farm versus development value can be quite large. One landowner mentioned receiving over $7 million in tax benefits through this process; however, a time restriction to use these benefits is in place, thus the benefits need to be used up over a certain number of years.[83]

The substantial tax benefit that may be created through the easement process should be of interest to landowners considering starting a sustainable farm on their property. Additionally, this tax benefit may entice investors to purchase land from willing landowners because the tax benefits could be used by the investment group whereas an individual may not be able to utilize this significant amount over a set period of time.

v. Benefits to Sustainable Farmers Created from Land under Easements

There are a few benefits created for sustainable farmers by eased land. Eased land allows the potential for ownership to sustainable farmers because once the land is eased; it

may be sold by the landowner at farm market values which are considerably less than development values. For example, in Montgomery County, PA, 48 farms under agricultural easements have been sold over the period of 1994 to 2009. (Appendix D, Agricultural Easement Data). Fifteen of these ownership transfers have been for $1, usually meaning property rights have been transferred among family members, while the remaining 33 farms have sold for an average of $10,423 per acre (Appendix D, Agricultural Easement Data), which is significantly less than the development value of $45,200/acre described earlier in this report. This data also portrays that 3 to 4 farms under agricultural easements are sold or transferred per year, creating the opportunity for startup farmers to purchase a farm in a close-in urban area at less than market value.

Another benefit to sustainable farmers comes through negotiating lease prices for access to land under easement. Since the land under easement must be farmed, landowners need to have someone farm it. Due to the numerous benefits of sustainable farming described earlier, sustainable farmers should be able to out-negotiate traditional farmers for access to land under agricultural easements. Some sustainable farms we have interviewed are capable of generating greater than $12,000 per acre per year in revenues as opposed to about $1,200 to $3,000 generated by a traditional farm.[84] Finally, sustainable farmers have an opportunity to turnaround traditional farms that are under agricultural easements, which would entail taking an existing plot used for chemical supported monocrop corn or soy and transferring the farm to a sustainable model.

vi. Benefits to Landowners from Land under Easement

Landowners that sell their agricultural easement rights to the State receive a number of financial benefits, aside from the non-economic benefits of preserving the land. First, the landowner receives cash from the state on a per acre basis. This cash, while most likely not

making up the landowners actual cost paid for the land, is the first tranche of income. As described above, the landowner will likely receive personal income tax write-offs for taking a capital loss on equity in the land. While the tax write-off varies by individual, one interviewee explained that the write-off was so large that they wouldn't be able to use it up in the 15 to 20 years it is available.

Since the land is under easement, it must be farmed. Landowners are capable of generating significant supplementary income by leasing land and housing, if applicable, to farmers. Finally, the landowner still owns the land under easement and maintains the right to sell the land in the future.

vii. Linking the Benefits and Creating New Opportunities

When land under an agricultural easement is sold, it is sold for considerably less than market value. Monitoring already eased land as well as land that is in the application process or has the potential to be eased may create a potential market for sustainable farmers. This is because the benefits provided to current landowners that pursue agricultural easements include preserving the farmland in perpetuity, receiving cash for selling the easement, receiving charitable donation tax credits, and maintaining the ability to sell the land in the future. Additionally, the potential for cheap access to land for farmers is high.

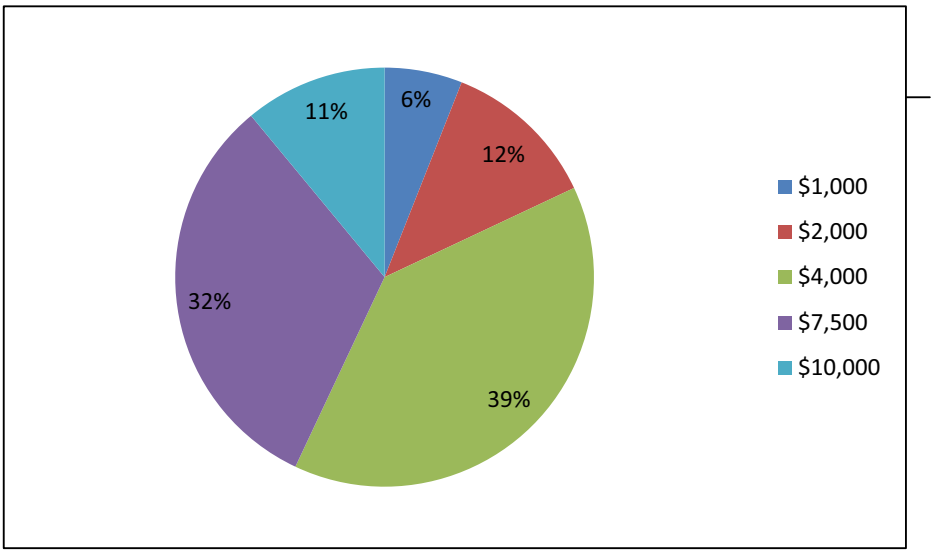
As of August 28, 2008, there were 428 farms totaling over 36,000 acres (average farm size of 85 acres) in Montgomery, Bucks, and Chester counties that are under agricultural easements. (Appendix D, Agricultural Easement Data). Data obtained from the Montgomery County Farmland Preservation Program (Appendix D, Agricultural Easement Data), suggests that 3 to 4 farm transfers occur each year for farms under agricultural easements. Extrapolating this data to incorporate Bucks, Montgomery, and Chester counties suggests that 10 to 14 farm sales occur each year for farms under agricultural easements. A director in

Montgomery County's Farmland Preservation Program stated that these farms sell rather quickly because traditional farmers are constantly looking to expand operations due to the limited revenues generated by soy or corn farms.

Aside from farms already under easements, Bucks, Chester, and Montgomery counties maintain databases of all applicants to the easement program as well as farms that meet criteria to apply. Accessing this data and making contact with farm owners of both eased farms and potentially eased farms should create opportunities for below market land access in Southeastern Pennsylvania.

viii. Public Relations Benefits

It is difficult to assign a single value to the amount spent by firms on developing and maintaining public relations. This is because the budget firms allocate for public relations varies to a great extent and are primarily based upon the size of the firm. The spending also varies depending on the industry to which the firm belongs; for example, a firm in the mining industry would likely spend more on public relations as opposed to a firm manufacturing consumer products. Also, due to the lack of information or knowledge on the topic, firms typically over-estimate or over budget the cost of a typical public relations campaign. Based on a research survey conducted on a sample of 102 people, the following results detail the amount they spend on public relations each month:[85]



More than 50% of those surveyed spent $2000 and $4000 each month.[86] Thus, for an average firm, the savings on public relations realized from sustainable agriculture would be approximately $3000 per month.

IV. Solutions

A. Farmers Understand the Bargaining Chips

The appropriate financial model should involve a matching process between farmers and land owners. Both farmers and landowners have bargaining chips in the negotiation process, and farmer must understand their relative position.

Landowners possess land that farmers need and cannot purchase at market rates, but this does not mean that farmers bring nothing to the table. Through sustainable farming activities, farmers provide a variety of benefits to different types of landowners. Monetary benefit is the most salient of these benefits. Sustainable farming has a better profitability than conventional farming, and should enjoy a better bargaining position. Other monetary benefits include the charitable income tax deduction and easement program discussed in other parts of this report. Community enhancement is another important benefit farmers provide.

Sustainable farming provides healthy food to local eaters, and the local community can get agricultural education by visiting and participating in sustainable farms. Sustainable farming also creates local jobs and enhances the community. Environmental improvement, such as ecosystem enhancement and soil enrichment, is another important benefit provided by sustainable farmers. Land conservation can also be achieved through sustainable farming. Finally, farmers provide an outlet for social concern and a farm experience for landowners.

In exchange for the benefits provided by sustainable farmers, landowners can contribute in the equity creation process. First, they could reduce lease rates, thus allowing farmers to pay for equity creation through some other asset than the farmland. The sale of farming rights is another major benefit landowners could provide. Farming rights, as discussed below, allow farmers to attain a perpetual ownership interest in the land that would allow the farmer to build equity with the appreciation of his or her partial ownership.

No single land access agreement can be applied to all circumstances. An effective approach for motivation identification should be in place prior to deciding on the best model. For example, cheap ownership is the simplest and easiest way to create equity for a farmer, but it only works if the land owners agree to give up ownership of the land for less than market value. Another example would be farming rights, which may be the best solution for landowners who are willing to sell a partial ownership in the land.

B. Factor Implementation Requires an Intermediary

A website by a third-party would fill the need for an intermediary. This website would be based on the same theme as websites like Craigslist, EBay, and eHarmony, and couldbe browsed by both potential farmers and interested landowners. When a landowner visits the website for the first time, he or she would be asked to register. During registration, the landowner would be asked to provide his or her name, address and other demographic

information. Once the landowner has registered, he or she will submit a request for proposal outlining the various factors that the landowner is seeking from the farmer. The factors desired would vary from landowner to landowner. They could be of economic value such as income or tax benefits, of environmental value such as soil improvement, or maybe some factors that just appeal to the landowner's personal interest. Once these factors have been identified by the landowner, the landowner would be required to indicate the equity that he or she is willing to allow for the farmer in exchange for these required factors. As with the factor selection, a menu of options should be available to the landowner indicating the various ways that the landowner could create equity for the farmer. A brief description for each option should be provided.

When a farmer visits the website for the first time he or she will also be required to register. During registration the farmer too will be required to provide his/her name, address and other demographic information. The farmer's profile should also indicate the farmer's experience and expertise. The farmer would provide the same type of information provided by the landowner, including the type of farming intended and the type of agreement and equity sought by the farmer.

The intermediary would be responsible for maintaining the database and all the underlying information. Information pertaining to new farmer and landowner registrations would be screened by the intermediary on a regular basis, before the information is posted and available publicly to both farmers and landowners. The function that matches farmers with landowners, based on the information provided, would be automated and should be incorporated by the intermediary before the website goes public. Whenever there is a match, an email would be sent to the respective landowner and the farmer providing relevant details that would include contact information and matching factors. In addition, to the email generation mechanism, both farmers and landowners should be allowed to browse the entire

database based on certain filters. For example, a landowner seeking a farmer would first filter by the geographic region, then by the factors that the farmer would be able to provide. Another example would be that of a farmer seeking a landowner and browsing the entire pool of landowners registered on the website without filtering the data.

The intermediary would also maintain a repository of resources to be made available to the farmers and the landowners. Once a match has been found between a farmer and a landowner and both parties provide their consent to go ahead, the intermediary could be able to provide resources for creating a business model for a sustainable farm. These could be resources like examples of business models and lease agreements already undertaken and based on similar motivational factors. The intermediary could also provide contacts of legal advisors and other relevant agencies customized for each individual case as and when available. In addition, the intermediary could act as a counselor for the farmers, especially while establishing financial models, and could also advise landowners when needed.

An Agricultural Association would be the ideal choice to serve as the intermediary and act as a liaison between the farmer and the landowner. As agricultural associations often maintain strong ties with the farmers, it would be easier to attract farmers and make them buy-in to this idea.

Although, the idea of developing such a website offers several advantages to both parties, it has a couple of potential hurdles. For a certain segment of landowners, the notion of looking for farmers on a website is not relevant. This group believes in prefers the traditional way of looking for farmers, which is largely through word-of-mouth. The intermediary would need to promote the advantages and benefits of this website to such landowner groups in order to change their way of thinking. It would also need to portray the ease of use and access as opposed to traditional means.

Another potential problem with this solution is identifying the intermediary and clearly defining its role. The intermediary needs to clearly indicate on its website (ideally this should be a part of the Terms of Agreement for use of the website) the role it would be playing while acting as the link between the farmer and the landowner. The intermediary needs to clearly define its boundaries in terms of the role it will play financially, legally, and educationally.

C. Farming Rights

Farming rights present an opportunity for the farmers to buy an interest in the land without buying and paying for absolute ownership of the land. A farming rights contract would be similar to a mineral rights contract. In a mineral rights contract, an energy company pays the land owner for the right to the minerals below the surface of the earth, but the land owner retains all other rights to the land. A farming rights contract would give the owner of the farming right the right to farm at least part of the land but would not grant any other rights to the land.[87]

A farming rights contract could be accomplished through a lease contract or through an easement. Under an easement, the farmer would purchase the perpetual right to farm a certain portion of the land. An easement would require the landowner to sell a portion of his or her interest in the land, and it would give the farmer an ownership of the land that is separate and distinct from the original land owner. Unlike an easement, a lease contract would not require a sale of any interest in the land. The landowner would retain his or her ownership of the land, but would contract away the right to farm the land. Under a lease, the farmer would purchase the right to farm a certain portion of the land for a specified amount of time.

As stated in other parts of this report, farmers would prefer to purchase land in order protect their investments in the farm. The problem with an outright purchase is the prohibitive and unnecessary cost of the land. Farmers are experts in farming operations, but not in land speculation. Farming rights offer farmers the ability to achieve the long-term protection they desire without incurring the expense of an outright purchase of the land. By purchasing the long-term right to farm the land, farmers can solve the problem of not being able to protect their investment long-term.

D. Strategic Partnerships

In order to build and grow a sustainable farm in a close-in urban environment, sustainable farmers must form strategic partnerships with landowners and other sustainable farmers. Starting a farm requires a significant amount of start-up capital, and farmers can both obtain capital and minimize start-up costs through partnerships with landowners. Once the farm grows from the startup phase, the farmer can begin to reap the benefits of aggregation through partnerships with other sustainable farmers.

A partnership with landowners can be achieved through the formation of a Limited Liability Company (LLC) at startup. An LLC is a legal entity that offers its members the single layer of tax enjoyed through a partnership and the limited liability enjoyed through a corporation. The LLC also has benefits for sustainable farmers as opposed to the Limited Liability Partnership (LLP) model because an LLC can be maintained with only one member, while an LLP requires the existence of at least two members. The farmer(s) and the landowner(s) would be the founding members of the LLC. The LLC model would allow the landowner to make an up-front monetary and land access investment into the LLC and would allow the farmer to become an employee of the LLC. Overtime, the farmer could collect a salary, but forego any profits from the LLC in order to pay out a reasonable return to the

landowner. The LLC could require the landowner to turn over his or her ownership stake in the LLC once the landowner collected a reasonable return.

After the landowner's stake in the LLC has dissolved, the farmer could begin to seek out the benefits of aggregation. With the LLC model, the farmer could allow other farmers to buy into the LLC and share the profits from multiple farming ventures among the member farmers. This model would also allow the member farmers to sell their interest in the LLC at the time of their retirement, thus creating a long-term equity interest for the farmers.

V. Conclusion

This research report includes careful analysis of the rapidly changing sustainable agriculture industry and interview data with stakeholders in the region of Southeastern Pennsylvania. For sustainable farmers to succeed in close-in urban areas, farmers must align their interests with the interests of landowners, and they must adopt new business models that leverage their professional skills in farming operations. Given the prohibitively high cost of land acquisition, farmers should focus on capturing an equity value created through their farming activities and creating a partnership with interested landowners. This report serves to explore the equity creation options for farmers practicing sustainable agriculture in Southeastern Pennsylvania.

Traditionally, equity is created for farmers through the owning of farmed land; however, as sustainable farmers have moved to close-in urban areas, they have given up this equity interest in order to afford access to close-in urban land. Additionally, our findings illustrate that undeveloped land in Southeastern Pennsylvania is prohibitively expensive for farmers to acquire. Though some landowners are willing to provide land at below market rates, outright ownership opportunities for farmers are minimal. In order to accommodate the situation and to take advantage of the high demand for sustainable farming, an alternative

business model for extracting equity is required. In order to farm close-in urban land while making a profit and having an equity creation, farmers must adopt new business models and align their interests with the interests of current landowners.

There are a number of successful sustainable farming operations in Southeastern Pennsylvania that have leveraged previously unaccounted benefits to build relationships and businesses with willing landowners. The potential exists to continue leveraging these benefits due to a number of individual landowners seriously interested in having sustainable farms on their property.

Other solutions may also become necessary for farmers to achieve a successful business model. The formation of an intermediary is necessary to connect farmers with landowners. An intermediary would help in aligning interests of landowners with interests of farmers, in facilitating agreements, and in acting as a guarantor. As farmers adopt a new business model that leverages their professional skills in farming operations, farmers can replace asset speculation with a farming partnership that allows the partners to gain equity in the partnership itself. Additionally, farmers can purchase the perpetual right to farm land owned by someone else. Both of these options create equity for the farmer without requiring the ownership of the farm land.

Farmers must take advantage of the unaccounted benefits of sustainable farming, such as producing healthy food, doing social good, and meeting landowner's interest, including conservation and environmentalism. These unaccounted benefits complement the monetary benefits available to landowners who allow a sustainable farm on their property. Farmers can leverage these benefits through a new business to gain equity and financial success.

VI. Appendices

Appendix A Environmental Analysis

Social

Recent trends in consumer behavior exhibit a preference towards consuming food products that are produced using sustainable agricultural practices. According to the definition from the United Nations, sustainable productions refer to "the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations." Currently consumers are increasingly concerned about environmental, social and economic issues, and are willing to act on those concerns. A global survey conducted in 2007 in association with Aegis, and repeated in 2008 in association with BBC World, confirmed that consumers in most countries are becoming more aware of and willing to act on environmental concerns. In fact, the US had the largest rise of all, from 57% in 2007 to 80% in 2008.

Similarly, in food consumption there is significant market growth in nutritious consumption. Consumers are more likely to purchase organic food rather than foods from conventional agriculture. One study, undertaken in 2008 by the Organic Trade Association, surveyed manufacturers in the organic industry. The survey indicated that U.S. sales of organic products, both food and non-food, have grown from $1 billion in 1990 to an estimated $24.6 billion in 2008, increasing seventeen percent in the last year despite the current economic situation. In terms of food consumption alone, organic food sales rose nearly sixteen percent, totaling $22.9 billion, and organic non-food sales rose thirty-nine percent, totaling $1.6 billion.

Sustainable agriculture is believed to increase food nutrient density and reduce toxic load. Individuals are attracted to organic food because of such supposed health benefits, especially for children. For hedonistic consumers, claims of superior flavor and nutrition (or enhanced food safety) are most relevant, and the environmental benefit of organic production is generally not as important. Large scale industrialized organic farms that cater to global markets are being setup as a response to consumer demand. Locally grown sustainable agriculture products form a necessary part to this market.

In addition to the benefits such as higher nutrition levels, high-quality, sustainable agriculture also brings many additional benefits to local communities and regions. It creates better conditions for farm workers. The people, who currently apply pesticides, also breathe it from tilled fields, and drink polluted ground water. Many farmers are poor and some are becoming poorer. A primary reason is unequal land distribution, where small farmers have little land security or access and lose a large part of their income to landowners.[88] Sustainable agriculture provides local farmers more secure income which improves business planning and time to concentrate on farming. It also brings a higher and fairer return for their products by selling directly to the public. Sustainable agriculture increases involvement in the local community and the opportunity to respond directly to consumers' needs.[89]

Local communities are becoming more concerned about the way to use land and hence are welcoming sustainable agriculture. Farmers who practice sustainable agriculture, especially family farmers are responsible stewards of the land. They ensure preservation of green space within the community and help support small businesses by purchasing goods and services produced locally within their communities. Finally, local communities believe sustainable agriculture benefits society by boosting democratic values in their communities through active civic participation, and by helping to preserve an essential connection between consumers, their food, and the land upon which this food is produced.

Technological

It is a popular myth that sustainable agriculture does not employ technology to improve productivity and increase efficiency. In fact, sustainable agriculture has been a pioneer in employing the wisdom of past practices like crop rotation and green manure crops, using equipment that leaves residue on the land surface thereby improving the quality of the soil. Over a period of time, sustainable agriculture has gradually adopted the vast array of information technologies now available in the market.[90] Technology, in the broader sense is not limited to equipment or software but also encapsulates the use of farm management techniques that focus not only on the output i.e. the production per hectare but also on the whole –farm productivity over time.[91]

Farmers who practice sustainable agriculture ensure that the delicate balance of the underlying ecosystem is not being tampered with. They try to refrain from the use of pesticides and fertilizers thereby not only saving money but also ensuring sustainability of the land, as well as the environment. Some of the most common techniques employed by farmers who practice sustainable agriculture are as follows:[92]

Crop Rotation

One of the most powerful techniques of sustainable agriculture is crop rotation. It is a practice, in which different crops are grown in succession in the same field. The primary advantage of using such a technique is reduction in pest population. This is because many pests have preferences for specific crops and hence tend to thrive when the same crop is planted year after year as it guarantees them a steady food supply. Crop rotation breaks the reproductive cycles of pests thereby reducing their numbers. Another advantage of crop rotation is that farmers can also plant crops rich in nitrogen like legumes that help replenish the soil nutrients. As the soil is being replenished naturally, it results in less need and use of artificial fertilizers, consequently increasing soil fertility and saving money.[93]

Cover Crops

Between cropping periods, farmers practicing sustainable agriculture plant cover crops such as clover or oats. These plants help in preventing soil erosion, enhancing soil quality and suppressing weeds. This not only ensures year-round productivity and continuity but also reduces the need for herbicides and insecticides.[94]

Soil Enrichment

One of the key objectives of practicing good sustainable agriculture is soil enrichment. Good soil consists of a large number of healthy bacteria and insects that are destroyed by overuse of pesticides. Leaving crop residue in the field after harvest and adding composted plant material or animal manure helps in restoring and enhancing soil quality. Good soils rich in nutrients also require less or almost no need of fertilizers thereby resulting in further cost savings.[95]

Natural Pest Predators

Sustainable farming practices not only ensure well-being of the farmland but also that of the surrounding ecosystem. The surrounding ecosystem often harbors natural pest killers like birds, bats, spiders etc. that not only helps in eliminating pests but also leaves the soil quality untouched.[96]

Biointensive Integrated Pest Management

Integrated Pest Management (IPM) relies on using biological measures to counter the threat from pests and comprises of techniques like crop rotation and release of beneficial organisms that prey on the pests. For example, biocontrol agents like sterile male ladybugs, have been used in the past to counter a particular pest problem.[97]

Sustainable farming techniques have not only been able to improve land quality but have also proven to be highly economically viable. According to a report published in February 2006 by a team of international scientists who evaluated more than 280 agricultural

projects, in 57 of the world's poorest regions, yields for sustainable farmers have increased by 71%. In addition to the economical benefits, sustainable farming techniques have also resulted in other benefits. Sustainable farming requires less water because soils are rich in organic material and are being continually replenished thereby allowing farmers to cultivate in areas where water could be difficult to obtain. Also, practices like crop rotation help in diversifying the risks of crop failure and a diverse collection of crops also provides the farmers, their families and the local community as a whole with a varied and nutritious diet.[98]

Although, technology brings along great benefits, it gives rise to apparent drawbacks as well. In recent years, one of the problems that most sustainable farmers have been facing is the non-availability of good organically grown seeds. The constant displacement of organically grown seeds by GMO (Genetically Modified Organisms) seeds continues to threaten the basic essence of sustainable farming. There is growing evidence of hazards to human health through consumption of goods containing GMOs. Even farmers that don't use GMO seeds are facing the threat of pollen from genetically modified crops increasingly contaminating non-GMO crops.[99]

Despite the dangers technology brings along, the future of technology from sustainable farming is bright. Techniques like "Precision Agriculture" that employs the use of computational technology, combined with geographical location devices and remote sensing knowledge hold the key to a successful and competitive future in sustainable agriculture.[100]

Economic

Sustainable agriculture brings social and economic benefits to the community and the society as a whole. The main economic impact can be considered as the stimulus to the local economy. Buying local food from farmers' markets can help increase farmers' income, creating new jobs and keeping money re-circulating inside the community.[101] According to the report by the Maine Organic Farmers and Organic Farmers and Gardener's Association,

farmers can gain an increase of 5% in income if consumers spend 1% more on buying locally grown foods. Additionally, 90% of the amount spent on local produce goes directly to the farmer, which means buying local could help farmers to make ends meet and run their business, boosting local economy.[102]

So, buying local has a greater multiplier effect on the community, boosting overall income and the level of economic activity, creating more jobs. Local food can definitely serve as an economic development main factor.

Trends in supply and demand:

Growth Rate

Since the system of sustainable agriculture includes a lot of organic practices, we use the growth rate of organic food as an indicator for this industry. Annual growth rate for organic food consumption is estimated at 20% per year for the next decade, compared to 1% in the overall food industry, which indicates this is a fast growing market.[103] Additionally, according to the data from the 2009 Organic Industry Survey by Organic Trade Association, since 1990, U.S sales of organic food and non-food products have grown from $1 to $20 billion in 2007 and reached $24.6 billion in 2008, indicating a 17.1% growth rate compared to 2007 sales. Among $24.6 billion, organic food sales accounts for 22.9 billion with the growth rate of 15.8% and organic non-food sales account for $1.648 billion with the growth rate of 39.4%. The total organic sales account for approximately 3.5% of overall food product sales in the United States.[104] Also, according to the report of "A Look Into the Future of Eating" conducted by The NPD Group, organic food is at the number 1 position out of top food trends. It accounts for 41% of 2,000 households.[105] Hence, compared to conventional food, sustainable agriculture industry is fast growing and appealing.

Purchasing pattern and premium products

Consumers are willing to pay a premium for locally produced food which is usually perceived as a high end product in food category possessing the qualities of being organic, fresh and with a better taste. Purchasing patterns indicate that these shoppers are not price sensitive; on the contrary, they seek a good experience. Also, frequent consumers will not change their habit of buying premium food due to the economic downturn; however, others going for organic food for the first time may decrease their buying due to the higher expenses. Overall, fresh organic price premium varies according to products and location.

These premiums reflect the short supply in the market and higher production costs. Usually, organic milk generates more premiums compared to fruits and vegetables.[106]

A study conducted by Ohio State University explains more about buying patterns. The study reveals that shoppers at farm markets are willing to pay almost twice the price for fruits and vegetables cultivated in local farms compared to retail grocery shoppers and in common both shoppers would send more for guaranteed fresh produce. These buying patterns favour food produce by small local farms.[107] Summing it up, farmers targeting local distribution for their food produces can exploit the buying pattern of consumers for a viable and profitable distribution.

Supply

Sustainable agriculture practice usually operates in a small scale. From the supplyperspective, there is an increase in small farms (The U.S. Department of Agriculture defines small farms as farms with $250,000 or less in sales of agricultural commodities) in the United States to meet the soaring demand. According to the 2007 Census of Agriculture, there are 18,467 more small farms counted in 2007 than in 2002. The growth rate for small farms is about 1% each year from 2002 to 2007. And, small farms account for 91% of all farms in the United States.[108] However, as there is a trend for consumers to buy locally organic food, the demand seems outstrip the supply. Therefore, a variety of locally produced

food farming is emerging to meet these demands with the support of favourable agriculture policies both at the state and federal level.

Forms of land access and equity

For sustainable farming, two primary costs are labor and land. Small scale farms are usually labor intensive and require more skills. For land, farmers have a number of leasing and owning options. Depending on their needs, capital and relationship with the land owner, various options available under leasing are cash lease, crop share, long term, lease with option to buy or right of first refusal, fee title purchase with seller financing and fee title purchase with agricultural conservation easement. (Please refer to Table 2)

Each of these options has its own advantages and disadvantages in terms of equity and usability of land for the farmers. Owning farm land requires a large capital investment and a huge down payment. Considering the fact that most farmers do not possess large financial capital, farmers can lease long term with a fee title purchase option. This enables farmers to either purchase the land through the buy option or finance the purchase of the land through the sale of development rights to the local land trust as in the agricultural conservation easement option. According to the article published by National Sustainable Agriculture Information Service "Finding Land to Farm: Six Ways to Secure Farmland", farmers should be aware of some of the clauses in the lease contract with the land owners that protects either the farmer or the owner from losses. For instance, the clause that spells out the predetermined price of the land at an agreed upon execution period in the long term buy option lease, provides the farmers with a very little negotiating power at the end of the execution period and when the land is up for sale. Another thing that the farmers should be aware of in the leasing agreement is the equity created through the purchase options. Different fee title purchase options affect the equity of the land. For example, in case of the

fee title purchase with the seller financing, the equity gained is lost if the farmer/buyer defaults in the payment as the land ownership automatically goes to the seller.[109]

Ecological

Sustainable agricultural practices result in ecological benefits that are aligned with current global and cultural trends including climate change, ecosystem health, recycling, waste minimization, and reductions in environmental contamination. Furthermore, these practices and their net positive effects in each of these ecological areas greatly contrast the practices and net negative effects of industrial and conventional farming. An interesting underlying factor concerning each of these areas is that the positive effects of sustainable agriculture are measureable, which allows for benchmarking, clear and quantifiable measures of the value added to the farmed land (i.e., soil, water, etc.).

Climate Change

Since the Kyoto Protocol in 1995, climate change has been a highly debated topic. Regardless of one's views on climate change, greenhouse gases have been shown to have negative effects on the ozone layer and thus increasing temperatures on the earth's surface. Sustainable agriculture plays a major role in carbon sequestration, removing carbon from the atmosphere. Studies have shown that organic and sustainable processes increase soil organic matter (i.e., carbon) as well as nitrogen levels through diversification and rotation of crops, conservation tillage, and efficient nutrient management unlike conventional farming practices that simply maintain the same amount of soil organic matter and nitrogen due to the use of chemical inputs (e.g., fertilizers) and monocropping.[110] Furthermore, sustainable farming practices use significantly less (a third of the amount) fossil fuels than conventional farms, and thus contribute fewer greenhouse gases than their counterparts.[111]

Carbon and nitrogen are key indicators of soil productivity and can be easily measured in analytical laboratories. Thus, a simple method to project value added through

sustainable farming may be to record soil analytical parameters over time. Additionally, estimates of carbon sequestration may be made using the same data (i.e., soil carbon levels or organic matter) which may contribute significant value through tax-savings or carbon credits depending on the size of the farm. Purchases of carbon offsets have been ongoing since 2003 on the Chicago Climate Exchange (CCX); however, farmers have yet to significantly participate. In Pennsylvania, estimates predict 0.6 tons of carbon sequestered per acre of soil per year and the maximum trading price of carbon offsets on the CCX has been $7.35 per ton.[112]

Ecosystem Health

Sustainable agriculture has been shown to vastly improve local ecosystems because of the methods used in sustainable farming and its underlying principles of improving human and ecological health by using natural processes. Aside from some of the practices mentioned in the previous section, sustainable farmers seek to integrate various natural processes in a holistic manner to create sustainability. These processes include:[113]

1. Relative location
2. Each element performs multiple functions
3. Each function is supported by many elements
4. Energy efficient planning
5. Using biological resources
6. Energy cycling
7. Small-scale intensive systems
8. Natural plant succession and stacking
9. Polyculture and diversity of species
10. Increasing "edge" within a system
11. Observe and replicate natural patterns

12. Pay attention to scale

13. Attitude.

Some positive results of these practices include less soil erosion, few chemical inputs, and maintenance of wildlife habitat. Again, these processes and net results of improved land use and local ecosystems contrast the processes of conventional farming that utilize numerous chemical inputs, large amounts of energy, and other short-term, non-sustainable practices.

Recycling and Waste Minimization

Other global and cultural trends include recycling and waste minimization. Again, sustainable agriculture is aligned with these trends by minimizing raw inputs, recycling used crops by composting, recycling nutrients by utilizing cover crops in off-seasons, and minimizing water usage and quality by improving soil properties. Furthermore, sustainable farming seeks to minimize transportation distances from farm to consumer thus minimizing energy usage and carbon emissions.

Environmental Contamination

Finally, sustainable agricultural practices generate virtually no environmental contamination. These practices focus on natural processes and cycles and use chemical inputs such as pesticides, herbicides, or insecticides only when necessary, if at all. One example of sustainable practices is that surface water run-off from farms is cleaner and has fewer suspended solids than its non-sustainable counterparts. More directly, sustainable farms use little if any chemical inputs, whereas conventional and industrial farms in the U.S. used 945 million pounds of pesticides, herbicides, and insecticides up from roughly 50 million pounds when these chemical components were first introduced in 1948.[114] While sustainable farms use biological processes and manual labor to manage weeds and pests allowing for natural selection to take place, conventional farms are creating chemical resistant bugs that may have dramatic effects on crop systems in the future.

In summary, the ecological benefits of sustainable farming far outweigh the negative effects of conventional farming. These benefits are aligned with global trends and should be reviewed as potential sources of value-adding inputs created by sustainable farmers.

Political

Zoning Laws

Zoning ordinances in Pennsylvania are passed by local municipalities and have the potential to greatly affect agricultural activities. While local municipalities have leeway in making land use decisions, these decision are subject to guidelines established by state government.

The governing body of any municipality has the authority to exercise its land planning authority itself or to delegate that authority to planning board.[115] If a planning board is created it is required to have 3-9 members appointed by the municipality's governing body.[116] The planning board may be authorized to "Prepare and present to the governing body of the municipality a zoning ordinance, and make recommendations to the governing body on proposed amendments to it …."[117]

Whether the land planning authority is exercised by the municipal governing body or a planning board, the authority is subject to certain requirements and limitations. Each municipality is required to come up with a comprehensive plan that includes a plan for land use, "which may include provisions for the amount, intensity, character and timing of land use proposed for … agriculture."[118] The plan must also "identify a plan for the preservation and enhancement of prime agricultural land and encourage the compatibility of land use regulation with existing agricultural operations."[119]

Governing bodies may regulate land development within the municipality by enacting land development ordinances.[120] Zoning ordinances may, "permit, prohibit, regulate, restrict and determine uses of land …, areas and dimensions of land … to be occupied by uses …,

intensity of use, and protection and preservation of natural … resources and prime agricultural land and activities.[121] Zoning ordinances must require that any land development plans be submitted to the governing body or planning board for approval.[122] Once the governing body of planning board in a municipality has set zoning ordinances, the ordinances may also provide for variances and special uses.[123]

Several state parameters for zoning ordinances directly address agricultural activities. Zoning ordinances must "encourage the continuity, development and viability of agricultural operations. Zoning ordinances may not restrict agricultural operations or changes to or expansions of agricultural operations in geographic areas where agriculture has traditionally been present unless the agricultural operation will have a direct adverse effect on the public health and safety."[124] Zoning ordinances must also be designed to preserve prime agriculture and farmland.[125] Finally, "Zoning ordinances shall encourage the continuity, development and viability of agricultural operations. Zoning ordinances may not restrict agricultural operations or changes to or expansions of agricultural operations in geographic areas where agriculture has traditionally been present unless the agricultural operation will have a direct adverse effect on the public health and safety."[126]

There are two primary models for agricultural zoning in Pennsylvania: sliding scale zoning and fixed-ratio zoning.[127] These two models are similar in that each "Provide(s) minimum and maximum lot areas for uses other than farming – homes and farm support businesses, limit(s) the number of development rights on a parcel, locate(s) dwelling or non-farm uses on areas of the farm property which are the least suitable for agriculture use, [requires that] the area remaining after all development rights have been used may not be further subdivided." The difference between the two models has to do with the number of developmental units allowed per agricultural acre. Under the sliding scale model, fewer developmental units are allowed per acre the bigger the farming parcel, whereas, under the

fixed-ratio model, the number of developmental units allowed per acre does not depend upon the size of the farming parcel.

Zoning in Pennsylvania occurs at the municipal level with oversight from the state in the form of zoning parameters. Local municipalities are given wide discretion to specify or restrict the specific use of land; however, this discretion is not absolute.

Agricultural Subsidies: [a]

Agricultural subsidies are determined by taking into account the number of acres on the farm and the use of those acres. Subsidies are paid out at sets rates per quantity of output. While controversy exists concerning the purpose of agricultural subsidies, the stated purpose is to avoid farmer poverty and establish a price floor for certain agricultural outputs.

An Overview of Types of Ownership and Land Access

Land access can be obtained either through contract or real property rights. When land access is obtained through contract, the most common form of access is a lease agreement. Lease agreements limit the amount of time that access is granted to the lessee. Lease agreement may set terms and lengths of time as a part of the contractual arrangement.

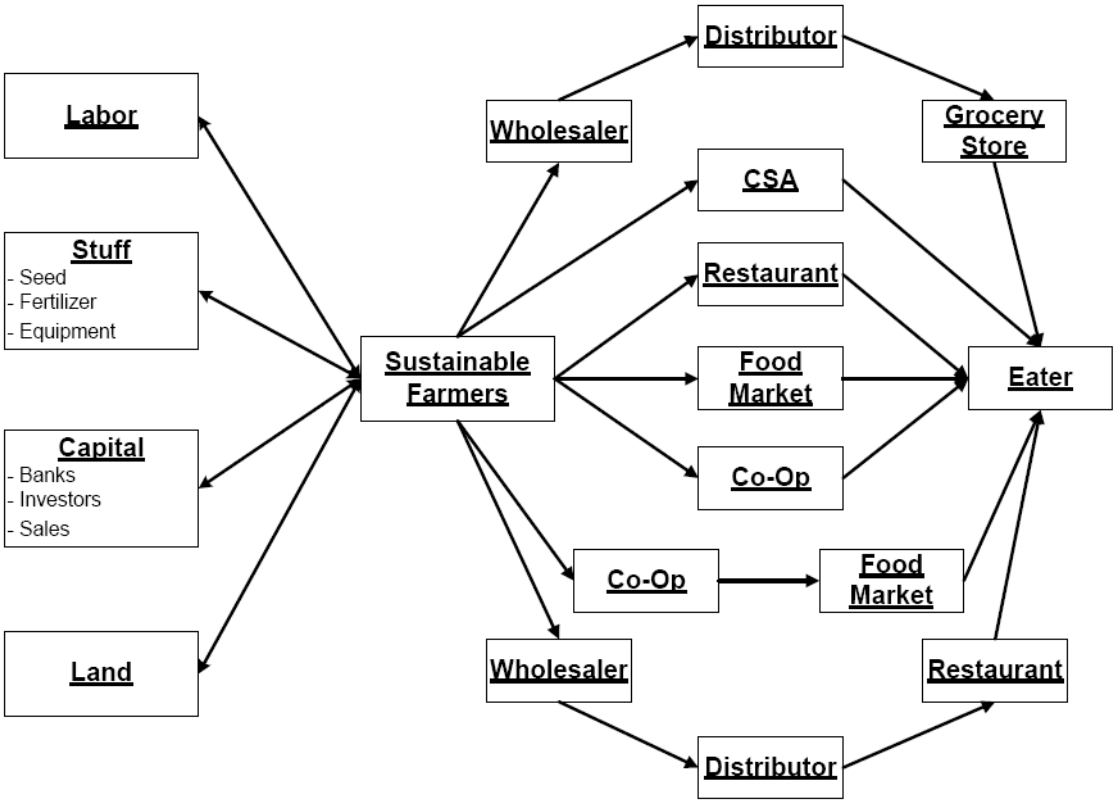
When land access is obtained as a real property right, many different ownership methods can be employed. The most basic type of ownership is a permanent and complete transfer of all real property rights from one entity to another. Short of this most basic type of ownership, real property may be transferred for limited or indefinite amounts of time and the rights transferred may be something short of complete ownership. The varieties of transfer arrangements possible are extensive but more limited and defined than the arrangements available through a lease agreement.

[a] This section is based on information gleaned from the "FOOD, CONSERVATION, AND ENERGY ACT OF 2008

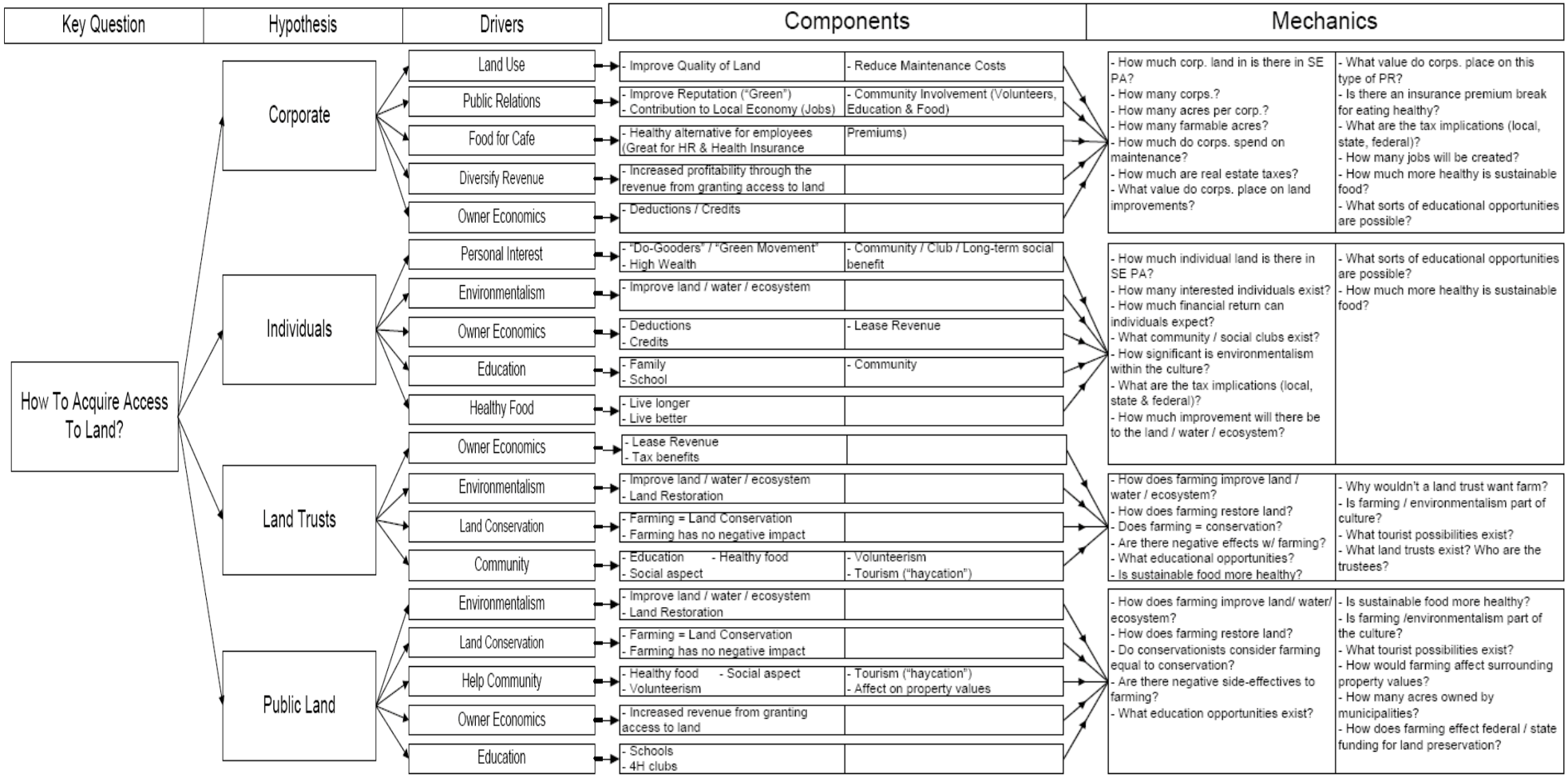
The ability to vary the length and extent of lease agreements or real property transfers presents the parties to a sale or lease with several options for the division of equity and the ultimate use of the property. Farmers looking to obtain access and affordable equity as a result of the transaction have several ownership and lease options that can be pursued.

Appendix B Industry Drivers and Value Chain

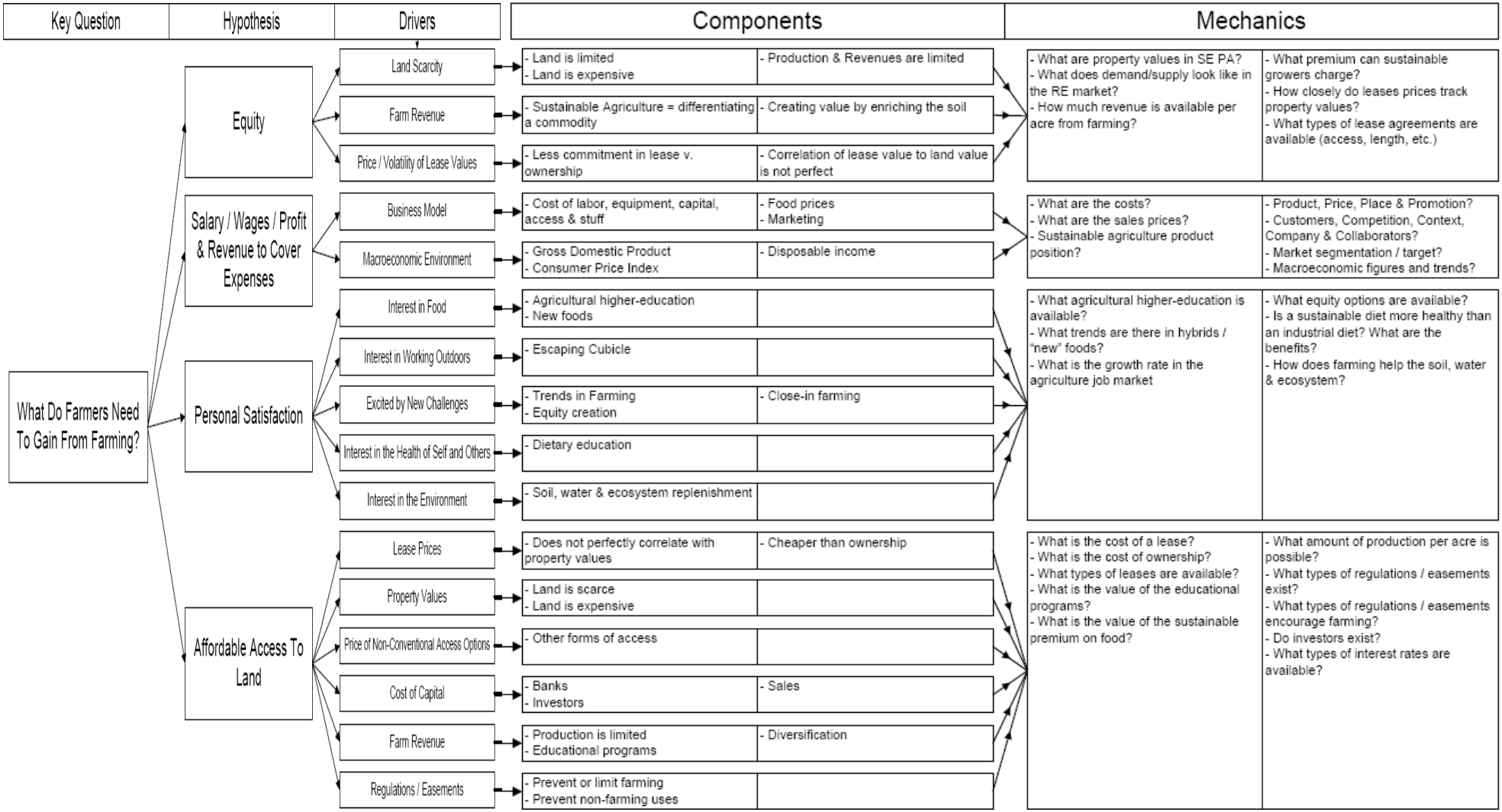
B.1 Value Chain



B.2 Industry drivers: Mutually Exclusive and Collectively Exhaustive (MECE) Tool Analysis



ENTERPRISE MANAGEMENT CONSULTING



2. Survey results

2.1 Farmer Survey Results Summary

To better understand the farmer perspective on land access as well as gain general census types of data such as location, number of employees, types of farms, farm revenues and financials to be used in projections, and other insights from the farmers, an internet survey was attached to the PASA annual survey. The survey was a success having a total of 51 respondents. Survey results are attached in this appendix. The following summarizes findings obtained from the survey.

- Six results are located in the five county Philadelphia area;
- The farms averaged 2.69 permanent employees and 2.63 interns. Only 12 of 48 respondents had interns, with one having 25. Also, one farm had 20 employees, slightly skewing the data;
- Of 48 respondents, about 60% have crop farms, about 60% have livestock farms, about 12.5% have dairy farms, and about 30% had "other farms". These results show that PASA farmers diversify their farm output. Also, of those that marked other farms, most fall into the crop or livestock category. Some other types of farms included indoor mushroom production, breeding farms, honeybees, etc.;
- The following data was obtained on farms size based on acres in production:

Size (in acres)	Count
0 - 6	15
6-19	5
20-49	8
50-99	9
100 - 350	11
> 350	12
Average Size	86.44 acres
Median Size	37.5 acres

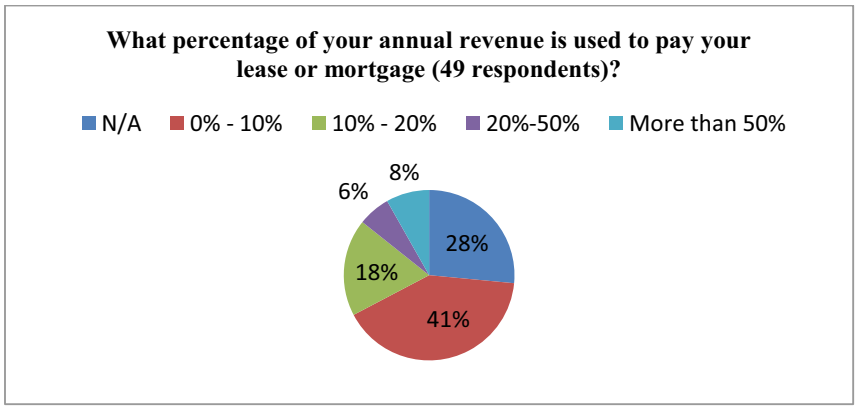
- The following results explain farmers land access arrangements, indicating the farmers' preference for owning the land they farm:

Lease	12.20%
Own	67.30%
Combination of Lease & Own	20.40%

- For farmers that lease land (15 respondents), various lengths of lease terms were indicated with 9/15 respondents having indefinite (month to month, year to year, family) agreements, 3/15 having one year agreements, and other respondents having less than one year or conditional terms such as "as long as we make a profit";
- The following results were obtained with respect to farms being under an agricultural easement, indicating 34% have or want to have an easement:

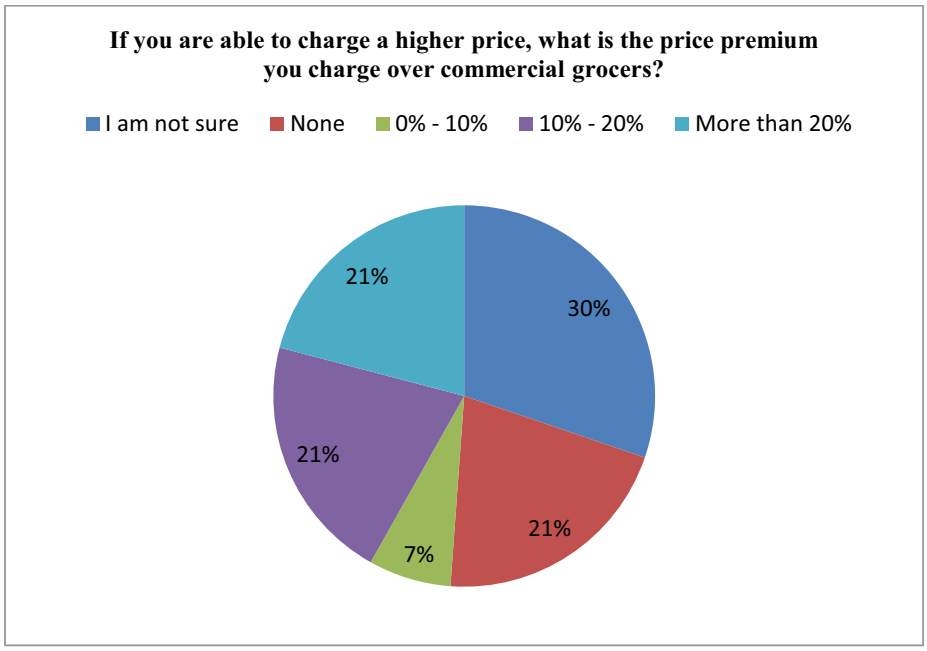
	Response Percent	Response Count
Yes	30.00%	15
No	58.00%	29
I don't know	10.00%	5
Applied/Want to apply	4.00%	2

- The following data was obtained regarding percent of revenue used for land access, showing that 27% either own land outright or pay nominal access fees, while 59% pay between 0% and 20% of annual revenues and 14% pay greater than 20% of annual revenues:



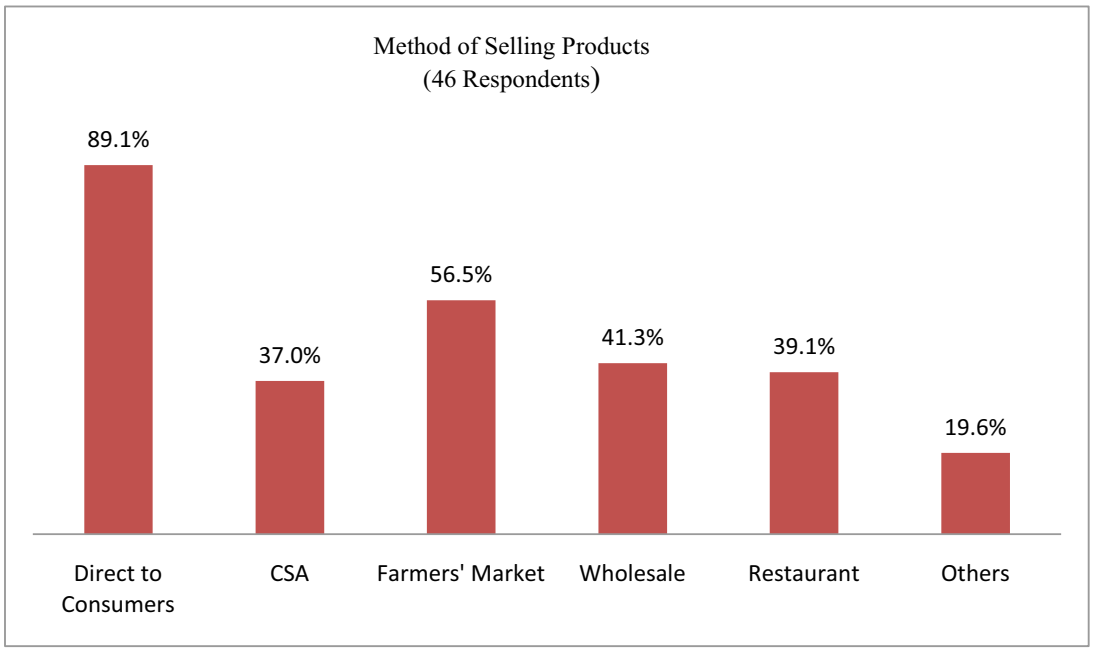
- When asked how much the farmer was willing to pay for additional access to land (own(mortgage) or lease), results varied greatly probably due mostly to geographic location and type of farm but ranged from $0 to $7,500 per acre. Some results mentioned bartering, and others offered insights such as depends on quality of soil, etc.;
- About 62% of respondents indicated they charge of premium price for their products primarily due to the quality of products, organic products, and direct selling. Those that indicated they did not charge a premium indicated market restrictions on ability to charge more (i.e., people cannot afford to pay, competition brings prices down). Also, as shown below, 30% are unsure of the price premium they charge, about 50%

charge between 0 and 20% more, and about 20% charge greater than 20% premium for their products;



- The following data was obtained regarding the farmers method of selling products to consumers. Notably, only 9 of 39 respondents indicated 100% of revenues are generated from on selling method, showing that farmers use multiple methods of

selling to increase sales:

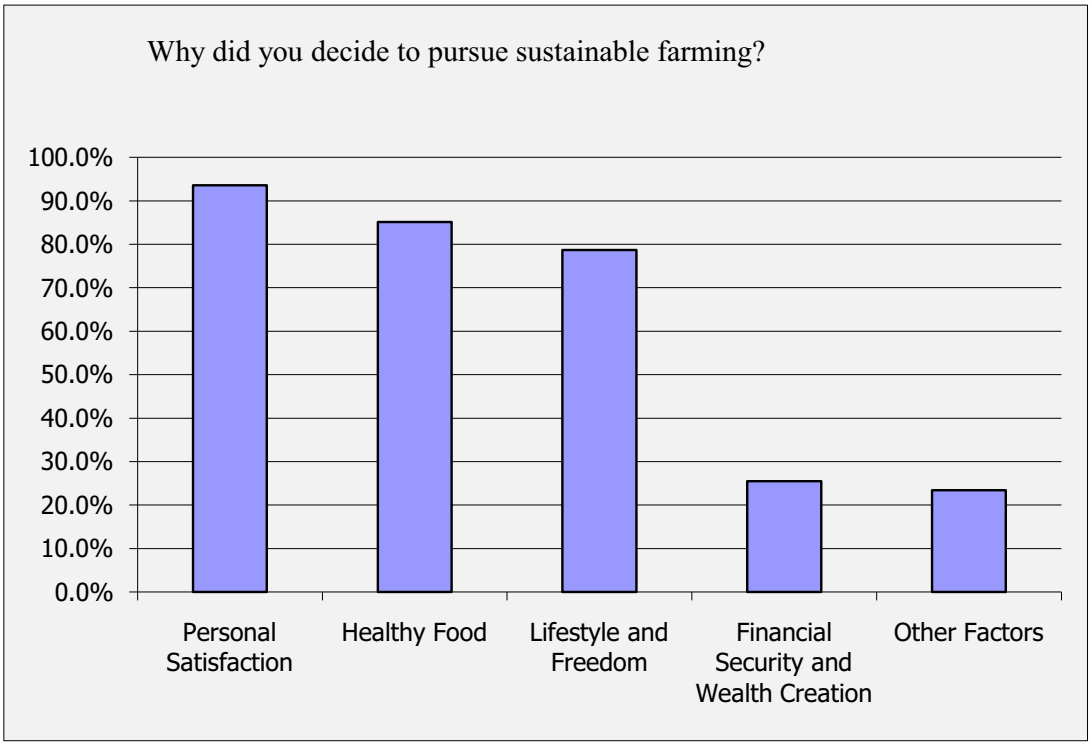


- Profits as a percent revenue indicated by farmers also varied greatly. 14 of 33 respondents indicated zero profit, 9 of 33 indicated 0-10% profit, and 10 of 33 indicated 10%-70% profit. These results show about 2/3s of farmers generate minimal profits, while the other 1/3 tries to maximize profits;
- Of 27 results that clearly indicated farm revenues, the range was $0 to $800,000.
- Farmers had five general answers about how they found the land that they farm as shown below. Notably, only 8% of respondents reported using an online source, while the majority of responses involved a realtor, family, or word of mouth:

Realtor	26%
Online	8%
Word of Mouth	23%
Family	28%
Physically Searched	15%

- Farmers indicated a preference to investing in land over investing in retirement funds;

- Unlike earlier answers as to how farmers found their land, when asked how they would go about finding additional land to farm, farmers responded that they would use multiple methods ranked in the following order: Networking (word of mouth), online resources, physically searching, and finally using a realtor and/or newspaper/magazine resources.
- The following summarizes "why" PASA farmers became farmers:



- Two-thirds of respondents (30/45) indicated a 10 on a scale of 1 to 10 (10 being most important) that owning the land they farm is extremely important to them. Nearly 20% of respondents indicated it was really important (7 to 9 on a 10 scale), about 5% were middle of the road meaning they are open to owning or leasing, while only 2 respondents indicated that owning land was not important to them;
- Finally, 83% of respondents would rather own the land they farm over the 17% that would lease it.

2.2 Research project survey original result

Question 1.

What is your zipcode?	
Answer Options	**Response Count**
	51
answered question	**51**
skipped question	**1**

Number	Response Date	Response Text
1	**Dec 22, 2009 2:35 PM**	17502
2	**Dec 22, 2009 2:52 PM**	4901
3	**Dec 22, 2009 2:56 PM**	15001
4	**Dec 22, 2009 3:09 PM**	16424
5	**Dec 22, 2009 3:32 PM**	16901
6	**Dec 22, 2009 3:34 PM**	17223
7	**Dec 22, 2009 3:36 PM**	3608
8	**Dec 22, 2009 4:06 PM**	17842
9	**Dec 22, 2009 4:29 PM**	18944
10	**Dec 22, 2009 5:13 PM**	15851
11	**Dec 22, 2009 7:19 PM**	26764
12	**Dec 22, 2009 8:02 PM**	21740
13	**Dec 22, 2009 9:25 PM**	15236
14	**Dec 22, 2009 9:30 PM**	16914

15	**Dec 23, 2009 1:53 AM**	16141
16	**Dec 23, 2009 2:07 AM**	19606
17	**Dec 23, 2009 1:19 PM**	16914
18	**Dec 23, 2009 3:17 PM**	16428
19	**Dec 23, 2009 10:56 PM**	17032
20	**Dec 24, 2009 11:10 PM**	43778
21	**Dec 26, 2009 3:37 AM**	19343
22	**Dec 27, 2009 3:21 PM**	19820
23	**Dec 27, 2009 6:37 PM**	16936
24	**Dec 28, 2009 4:57 PM**	15065
25	**Dec 29, 2009 2:31 AM**	16255
26	**Dec 29, 2009 12:08 PM**	43031
27	**Dec 30, 2009 2:41 AM**	16693
28	**Dec 30, 2009 3:02 PM**	19950
29	**Dec 31, 2009 7:58 PM**	19520
30	**Jan 5, 2010 3:41 PM**	16801
31	**Jan 6, 2010 7:54 PM**	16823
32	**Jan 6, 2010 8:13 PM**	17020
33	**Jan 6, 2010 8:22 PM**	21161
34	**Jan 6, 2010 8:42 PM**	17015
35	**Jan 6, 2010 8:48 PM**	17557
36	**Jan 6, 2010 9:32 PM**	19530
37	**Jan 7, 2010 12:11 AM**	18054
38	**Jan 7, 2010 3:15 AM**	15530
39	**Jan 7, 2010 1:13 PM**	21162
40	**Jan 7, 2010 3:12 PM**	16823
41	**Jan 7, 2010 4:11 PM**	14802
42	**Jan 7, 2010 4:35 PM**	17315

43	**Jan 7, 2010 5:24 PM**	17201
44	**Jan 7, 2010 5:35 PM**	15559
45	**Jan 7, 2010 8:29 PM**	19446
46	**Jan 7, 2010 8:34 PM**	17044
47	**Jan 7, 2010 8:46 PM**	15724
48	**Jan 9, 2010 12:42 AM**	13152
49	**Jan 9, 2010 4:20 AM**	19534
50	**Jan 9, 2010 5:37 AM**	16746
51	**Jan 10, 2010 3:14 PM**	18414

Question

How many people work on your farm?

Answer Options	Response Average	Response Total	Response Count
Permanent?	2.69	129	48
Interns?	2.63	50	19
		answered question	**48**
		skipped question	**4**

Number	Response Date	Permanent?	Interns?
1	**Dec 22, 2009 2:56 PM**	2	
2	**Dec 22, 2009 3:09 PM**	2	
3	**Dec 22, 2009 3:32 PM**	2	
4	**Dec 22, 2009 3:34 PM**	3	
5	**Dec 22, 2009 3:36 PM**	2	
6	**Dec 22, 2009 4:06 PM**	4	
7	**Dec 22, 2009 4:29 PM**	2	4
8	**Dec 22, 2009 5:13 PM**	2	2

9	**Dec 22, 2009 7:19 PM**	2	1
10	**Dec 22, 2009 9:25 PM**	3	1
11	**Dec 22, 2009 9:30 PM**	2	0
12	**Dec 23, 2009 1:53 AM**	1	
13	**Dec 23, 2009 2:07 AM**	1	
14	**Dec 23, 2009 1:19 PM**	2	
15	**Dec 23, 2009 3:17 PM**	3	
16	**Dec 23, 2009 10:56 PM**	2	0
17	**Dec 24, 2009 11:10 PM**	4	1
18	**Dec 26, 2009 3:37 AM**	2	4
19	**Dec 27, 2009 3:21 PM**	2	2
20	**Dec 27, 2009 6:37 PM**	3	
21	**Dec 28, 2009 4:57 PM**	4	3
22	**Dec 29, 2009 2:31 AM**	2	
23	**Dec 29, 2009 4:27 AM**	2	0
24	**Dec 29, 2009 12:08 PM**	1	
25	**Dec 30, 2009 2:41 AM**	1	
26	**Dec 30, 2009 3:02 PM**	3	
27	**Dec 31, 2009 7:58 PM**	2	
28	**Jan 6, 2010 7:54 PM**	0	0
29	**Jan 6, 2010 8:13 PM**	9	
30	**Jan 6, 2010 8:22 PM**	20	
31	**Jan 6, 2010 8:42 PM**	2	0
32	**Jan 6, 2010 8:48 PM**	2	
33	**Jan 6, 2010 9:32 PM**	1	
34	**Jan 7, 2010 12:11 AM**	2	
35	**Jan 7, 2010 3:15 AM**	2	
36	**Jan 7, 2010 1:13 PM**	3	

37	**Jan 7, 2010 3:12 PM**	7	
38	**Jan 7, 2010 4:11 PM**	4	25
39	**Jan 7, 2010 4:35 PM**	2	2
40	**Jan 7, 2010 5:24 PM**	1	4
41	**Jan 7, 2010 5:35 PM**	2	
42	**Jan 7, 2010 8:29 PM**	1	
43	**Jan 7, 2010 8:34 PM**	2	1
44	**Jan 7, 2010 8:46 PM**	2	
45	**Jan 9, 2010 12:42 AM**	1	0
46	**Jan 9, 2010 4:20 AM**	1	0
47	**Jan 9, 2010 5:37 AM**	2	
48	**Jan 10, 2010 3:14 PM**	2	

Question 3.

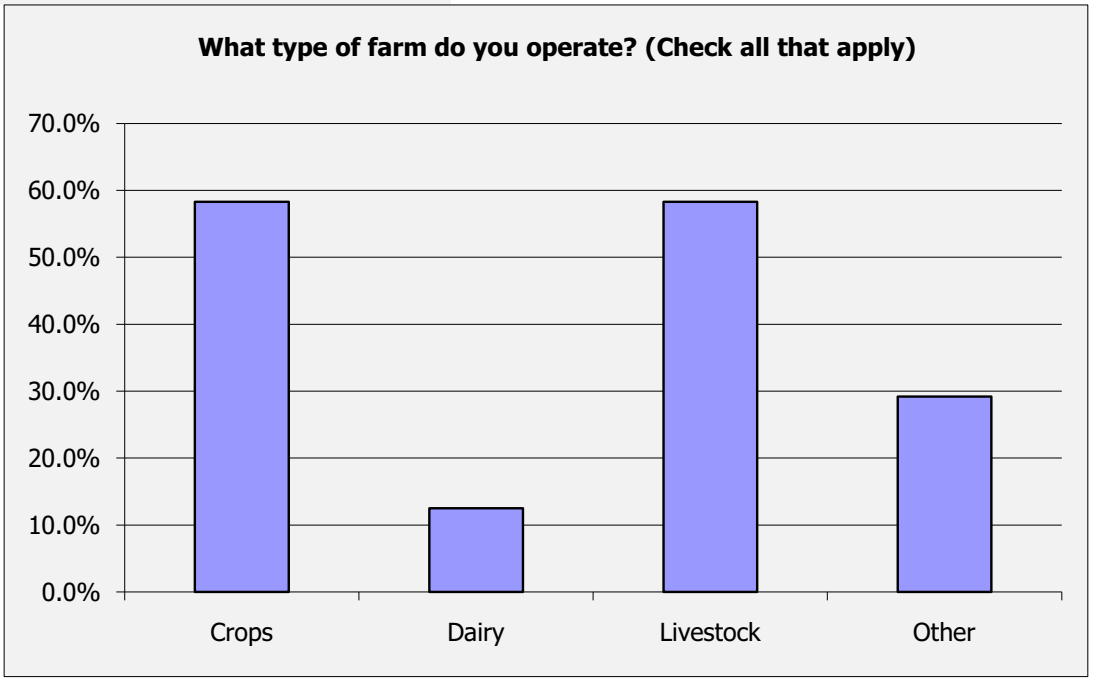
What type of farm do you operate? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Crops	58.3%	28
Dairy	12.5%	6
Livestock	58.3%	28
Other	29.2%	14
Please explain:		22
	answered question	**48**
	skipped question	**4**

What type of farm do you operate? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Crops	58.3%	28
Dairy	12.5%	6
Livestock	58.3%	28
Other	29.2%	14
Please explain:		22
	answered question	**48**
	skipped question	**4**

Number	Response Date	Please explain:
1	Dec 22, 2009 2:56 PM	honey bees
2	Dec 22, 2009 3:36 PM	Indoor production of gourmet and medicinal mushrooms.

		Breed conservancy farm
3	**Dec 22, 2009 4:06 PM**	producing breeding stock
4	**Dec 22, 2009 7:19 PM**	direct marketed vegetables
		do Ag marketing for
5	**Dec 22, 2009 8:02 PM**	Washington County Maryland
6	**Dec 23, 2009 2:07 AM**	cow calf
		100% Grass-fed Angus BEEF &
		Beefalo
		Pastured Duroc Pigs and Buff-
7	**Dec 23, 2009 1:19 PM**	Orpington Hen's
8	**Dec 23, 2009 3:17 PM**	Perennial fruit - grapes
9	**Dec 26, 2009 3:37 AM**	organic vegetable production
10	**Dec 27, 2009 3:21 PM**	Mixed
		mixed vegetables, transitioning
11	**Dec 29, 2009 2:31 AM**	to perennial food crops
		well-established dairy producing
12	**Dec 29, 2009 4:27 AM**	all feed for cattle
		raise beef calves to slaughter
		and sale at retail farmers
13	**Dec 29, 2009 12:08 PM**	market
14	**Jan 6, 2010 8:22 PM**	hay
		Beef cattle.
		Purebred Black Angus for seed
15	**Jan 6, 2010 8:42 PM**	stock and Freezer Beef.

		A closed herd for over 20 years
		produce maple syrup and grow
16	**Jan 7, 2010 12:11 AM**	grains for resale
		It's just a small family
17	**Jan 7, 2010 3:12 PM**	production.
18	**Jan 7, 2010 4:11 PM**	Greenhouses
19	**Jan 7, 2010 5:24 PM**	CSA
		small scale urban specialty
		produce/herbs, keep bees and
20	**Jan 7, 2010 8:29 PM**	chickens for eggs
21	**Jan 9, 2010 12:42 AM**	eggs, honey
		maple syrup; Christmas trees;
		hay; sheep; small grains
		(anticipated in 2010)



Question 4.

How many acres do you currently have in production?	
Answer Options	**Response Count**
	49
answered question	**49**
skipped question	**3**

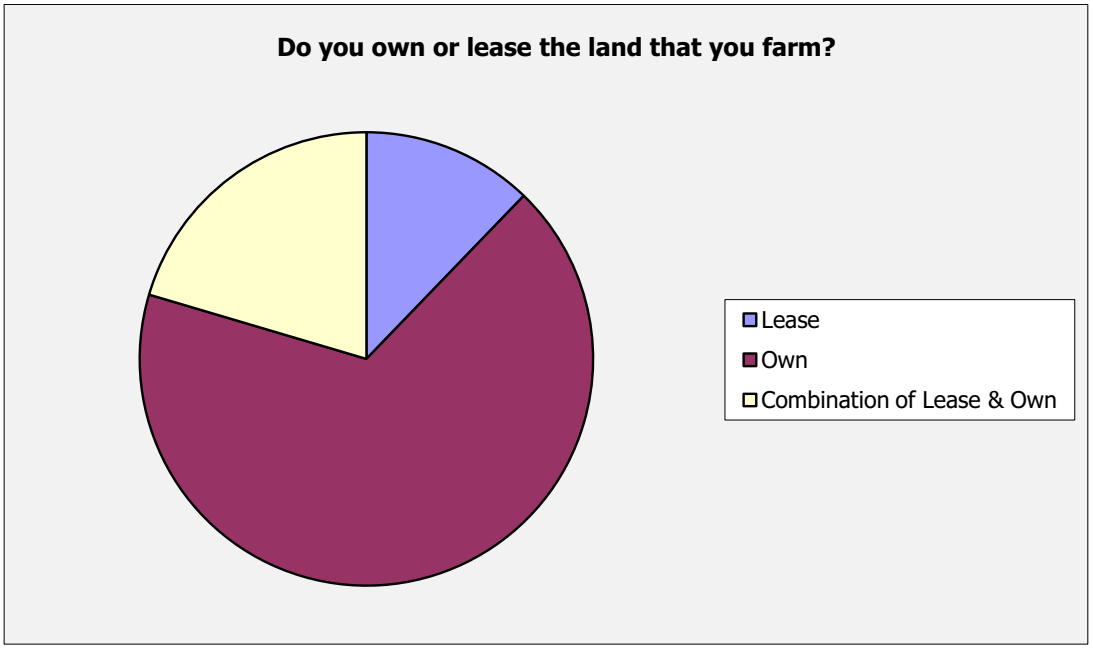
Number	Response Date	Response Text
1	Dec 22, 2009 2:56 PM	35
2	Dec 22, 2009 3:09 PM	20
3	Dec 22, 2009 3:32 PM	1
4	Dec 22, 2009 3:34 PM	50
5	Dec 22, 2009 3:36 PM	0
6	Dec 22, 2009 4:06 PM	170
7	Dec 22, 2009 4:29 PM	21
8	Dec 22, 2009 5:13 PM	23
9	Dec 22, 2009 7:19 PM	9
10	Dec 22, 2009 8:02 PM	0
11	Dec 22, 2009 9:25 PM	2
12	Dec 22, 2009 9:30 PM	40
13	Dec 23, 2009 1:53 AM	150
14	Dec 23, 2009 2:07 AM	120
15	Dec 23, 2009 1:19 PM	40

16	**Dec 23, 2009 3:17 PM**	185
17	**Dec 23, 2009 10:56 PM**	350
18	**Dec 24, 2009 11:10 PM**	3
19	**Dec 26, 2009 3:37 AM**	7
20	**Dec 27, 2009 3:21 PM**	50
21	**Dec 27, 2009 6:37 PM**	80
22	**Dec 28, 2009 4:57 PM**	12
23	**Dec 29, 2009 2:31 AM**	3
24	**Dec 29, 2009 4:27 AM**	700
25	**Dec 29, 2009 12:08 PM**	45
26	**Dec 30, 2009 2:41 AM**	6
27	**Dec 30, 2009 3:02 PM**	109
28	**Dec 31, 2009 7:58 PM**	5
29	**Jan 6, 2010 7:54 PM**	1
30	**Jan 6, 2010 8:13 PM**	60
31	**Jan 6, 2010 8:22 PM**	175
32	**Jan 6, 2010 8:42 PM**	300
33	**Jan 6, 2010 8:48 PM**	132
34	**Jan 6, 2010 9:32 PM**	5
35	**Jan 7, 2010 12:11 AM**	90
36	**Jan 7, 2010 3:15 AM**	100
37	**Jan 7, 2010 1:13 PM**	76
38	**Jan 7, 2010 3:12 PM**	2
39	**Jan 7, 2010 4:11 PM**	750
40	**Jan 7, 2010 4:35 PM**	13
41	**Jan 7, 2010 5:24 PM**	5
42	**Jan 7, 2010 5:35 PM**	2
43	**Jan 7, 2010 8:29 PM**	1

44	**Jan 7, 2010 8:34 PM**	80
45	**Jan 7, 2010 8:46 PM**	60
46	**Jan 9, 2010 12:42 AM**	2
47	**Jan 9, 2010 4:20 AM**	60
48	**Jan 9, 2010 5:37 AM**	2
49	**Jan 10, 2010 3:14 PM**	150

Question 5.

Do you own or lease the land that you farm?		
Answer Options	**Response Percent**	**Response Count**
Lease	12.2%	6
Own	67.3%	33
Combination of Lease & Own	20.4%	10
answered question		**49**
skipped question		**4**



Question 6.

If you lease the land, how long is the lease agreement?	
Answer Options	**Response Count**
	15
answered question	**15**
skipped question	**38**

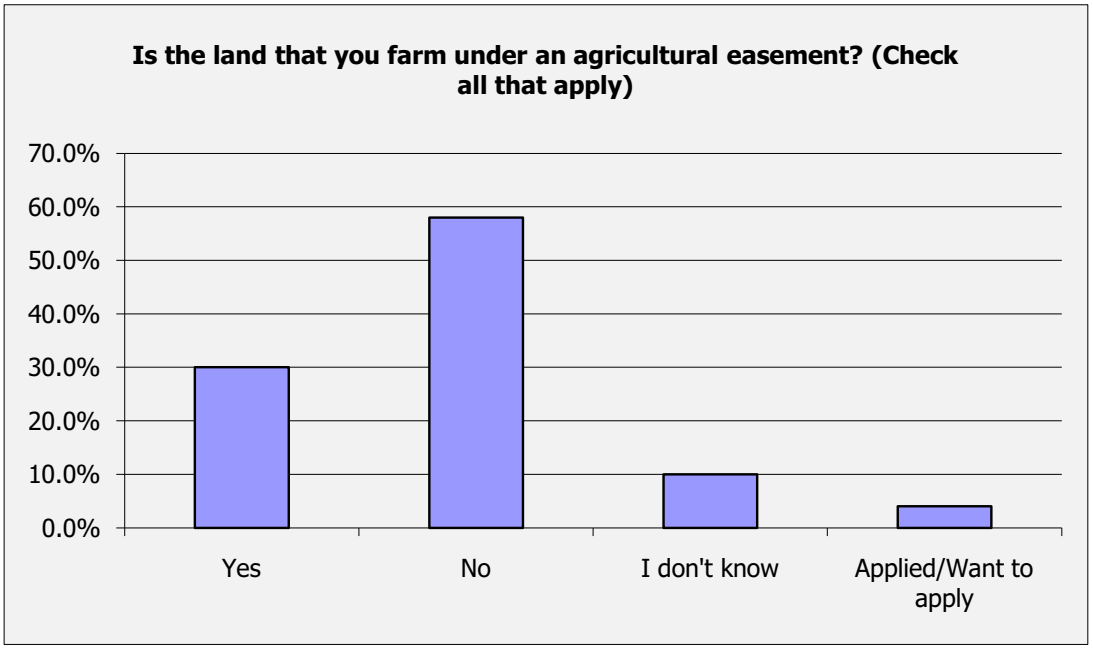
Number	Response Date	Response Text
1	Dec 22, 2009 3:36 PM	9 months
2	Dec 23, 2009 2:07 AM	family
3	Dec 23, 2009 10:56 PM	SOME YR TO YR SOME 10 YRS
4	Dec 26, 2009 3:37 AM	undefined (it's with our Family Limited Partnership
5	Dec 29, 2009 4:27 AM	year to year
6	Dec 30, 2009 3:02 PM	year to year
7	Jan 6, 2010 8:22 PM	indefinate
8	Jan 6, 2010 8:42 PM	month to month
9	Jan 6, 2010 8:48 PM	1 year
10	Jan 7, 2010 3:15 AM	Year to year
11	Jan 7, 2010 1:13 PM	1 year
12	Jan 7, 2010 5:35 PM	one year
13	Jan 7, 2010 8:29 PM	open

14	**Jan 7, 2010 8:34 PM**	5 years
15	**Jan 9, 2010 4:20 AM**	as long as we break even or make a profit

Question 7.

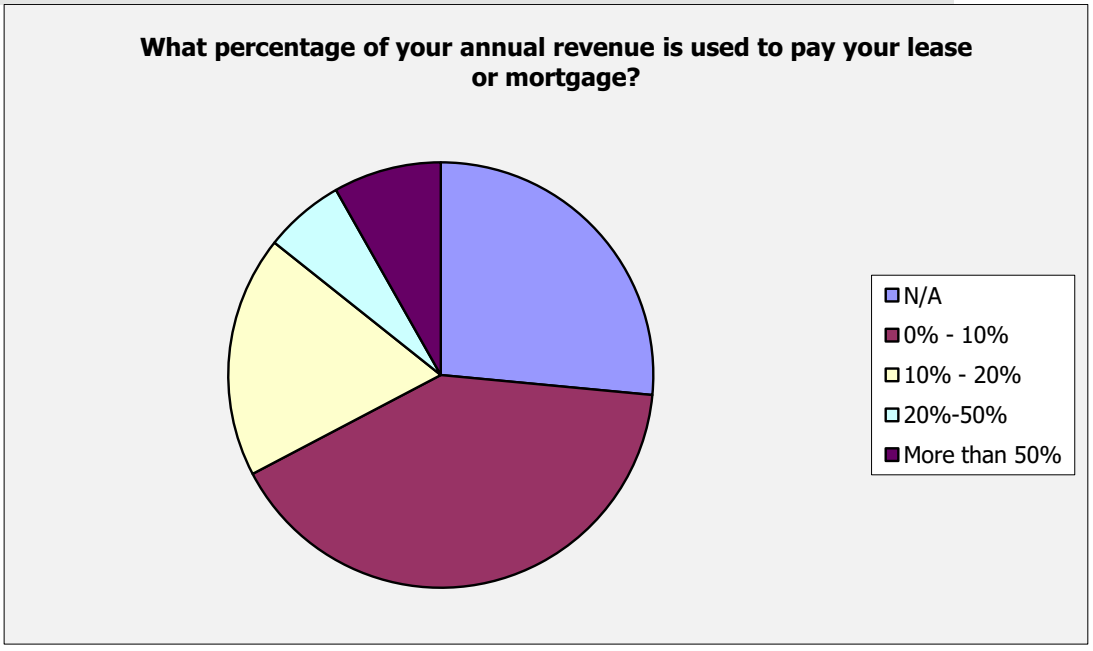
Is the land that you farm under an agricultural easement? (Check all that apply)

Answer Options	**Response Percent**	**Response Count**
Yes	30.0%	15
No	58.0%	29
I don't know	10.0%	5
Applied/Want to apply	4.0%	2
answered question		**50**
skipped question		**3**



Question 8.

What percentage of your annual revenue is used to pay your lease or mortgage?		
Answer Options	**Response Percent**	**Response Count**
N/A	26.5%	13
0% - 10%	40.8%	20
10% - 20%	18.4%	9
20%-50%	6.1%	3
More than 50%	8.2%	4
answered question		**49**
skipped question		**4**



Question 9.

What price would you pay (per acre) for access to additional land?	
Answer Options	**Response Count**
	38
answered question	**38**
skipped question	**15**

Number	Response Date	Response Text
1	Dec 22, 2009 3:32 PM	0
2	Dec 22, 2009 3:34 PM	1000
3	Dec 22, 2009 3:36 PM	n/a
4	Dec 22, 2009 4:06 PM	NA
5	Dec 22, 2009 4:29 PM	300 acre
6	Dec 22, 2009 7:19 PM	$0 don't need extra land
7	Dec 22, 2009 8:02 PM	2000
8	Dec 22, 2009 9:25 PM	n/a
9	Dec 22, 2009 9:30 PM	Purchase: $2k not interested in lease
10	Dec 23, 2009 1:53 AM	2000
11	Dec 23, 2009 2:07 AM	50
12	Dec 23, 2009 1:19 PM	20
13	Dec 23, 2009 3:17 PM	7500
14	Dec 23, 2009 10:56 PM	80
15	Dec 24, 2009 11:10 PM	2000
16	Dec 26, 2009 3:37 AM	Don't know - but may have to after estate is settled.
17	Dec 27, 2009 3:21 PM	$150/acre

18	**Dec 28, 2009 4:57 PM**	$250/year
19	**Dec 29, 2009 2:31 AM**	n/a
20	**Dec 29, 2009 4:27 AM**	depends on the land/soils and its proximity to home farm
21	**Dec 29, 2009 12:08 PM**	buy 5000/rent 70
22	**Dec 30, 2009 2:41 AM**	3000
23	**Dec 30, 2009 3:02 PM**	N/A
24	**Jan 6, 2010 7:54 PM**	2000
25	**Jan 6, 2010 8:22 PM**	dont' know
26	**Jan 6, 2010 8:42 PM**	$50 / acre Good Hay ground
27	**Jan 6, 2010 8:48 PM**	300
28	**Jan 7, 2010 3:15 AM**	NA
29	**Jan 7, 2010 1:13 PM**	50
30	**Jan 7, 2010 4:35 PM**	would barter
31	**Jan 7, 2010 5:35 PM**	0
32	**Jan 7, 2010 8:29 PM**	5000
33	**Jan 7, 2010 8:34 PM**	25
34	**Jan 7, 2010 8:46 PM**	n/a
35	**Jan 9, 2010 12:42 AM**	2000
36	**Jan 9, 2010 4:20 AM**	N/A
37	**Jan 10, 2010 3:14 PM**	0
38	**Jan 11, 2010 6:40 PM**	50

Question 10.

Are you able to charge a higher price for your products compared to commercial grocers? Why or why not?	
Answer Options	**Response Count**

	39
answered question	**39**
skipped question	**14**

Number	Response Date	Response Text
1	Dec 22, 2009 2:56 PM	yes-customers recognize the value of local honey
2	Dec 22, 2009 3:09 PM	yes, People like method of production and freshness
3	Dec 22, 2009 3:32 PM	Yes, I produce sustainably grown, free range poultry.
4	Dec 22, 2009 3:34 PM	Eggs sell for $2.00/doz regardless of Gant price
5	Dec 22, 2009 3:36 PM	Not sure yet - we just started the business.
		Yes The blood lines of the breeding stock are well known.
6	Dec 22, 2009 4:06 PM	There is a waiting list to get our meat which is free-range, hormone and antibiotic-free, grass-based, humanely raised and from a heritage breed.
7	Dec 22, 2009 5:13 PM	I charge proper prices in Pittsburgh but can not get them here where the med. fam. income is $22-30K
8	Dec 22, 2009 7:19 PM	Yes, but try to avoid doing so when profitable.
9	Dec 22, 2009 9:25 PM	yes, sustainabkle/organic practices and high demand
10	Dec 22, 2009 9:30 PM	For some items yes. Supply is abundant in area for certain offerings.
11	Dec 23, 2009 1:53 AM	yes. produce grassfed
12	Dec 23, 2009 2:07 AM	do not
13	Dec 23, 2009 1:19 PM	Yes. Because we sell what is produced on our farm, where our farm-store is also located.

14	**Dec 23, 2009 3:17 PM**	no, market limitations
15	**Dec 23, 2009 10:56 PM**	NO pEOPLE CAN'T AFFORD IT
16	**Dec 24, 2009 11:10 PM**	Yes, retailing directly to the consumer in exclusively organic markets.
17	**Dec 26, 2009 3:37 AM**	Yes, food is far superior in every way
18	**Dec 27, 2009 3:21 PM**	Yes. Organic and direct sales.
19	**Dec 28, 2009 4:57 PM**	yes - we're certified organic
20	**Dec 29, 2009 2:31 AM**	I do charge a higher price -- with mixed success because of the local area; traveling to a more urban area to market my products would bring consistently higher prices for my products.
21	**Dec 29, 2009 4:27 AM**	we generally charge less - our certified organic meat is sold retail at wholesale prices. we charge more than local store prices for our eggs
22	**Dec 29, 2009 12:08 PM**	somewhat higher--better quality and stronger customer trust
23	**Dec 30, 2009 2:41 AM**	No. Have a hard time finding customers willing to pay more than what they would in a store, even though it is a fresher, healthier, better product.
24	**Dec 30, 2009 3:02 PM**	Sometimes
25	**Jan 6, 2010 7:54 PM**	N/A
26	**Jan 6, 2010 8:22 PM**	yes we are certified organic
27	**Jan 6, 2010 8:42 PM**	Yes, We operate an all natural farm. No Chemicals..antibiotics...etc
28	**Jan 6, 2010 9:32 PM**	Yes, because produce is specialized, local, and delicious -- low spray (only for tomato blight this past summer)

29	**Jan 7, 2010 12:11 AM**	no, grocers charge more for the syrup than we can
30	**Jan 7, 2010 1:13 PM**	no
31	**Jan 7, 2010 4:35 PM**	able to charge about the same price
32	**Jan 7, 2010 5:35 PM**	we are certified organic and thus can charge a little more.
33	**Jan 7, 2010 8:29 PM**	yes, because my customers recognize the quality and value the way I grow my produce
34	**Jan 7, 2010 8:34 PM**	yes, better quality, healthier, known source for consumers
35	**Jan 7, 2010 8:46 PM**	We get higher prices because we use organic & humane methods
36	**Jan 9, 2010 12:42 AM**	yes
37	**Jan 9, 2010 4:20 AM**	higher quality and consumer/farmer connection
38	**Jan 10, 2010 3:14 PM**	No - I charge a fair price and what the market will support, which can be dependent on area. This allows me to discount to senior citizens
39	**Jan 11, 2010 6:40 PM**	no - we choose not to charge more for maple syrup or Christmas trees
		yes. All natural production methods.

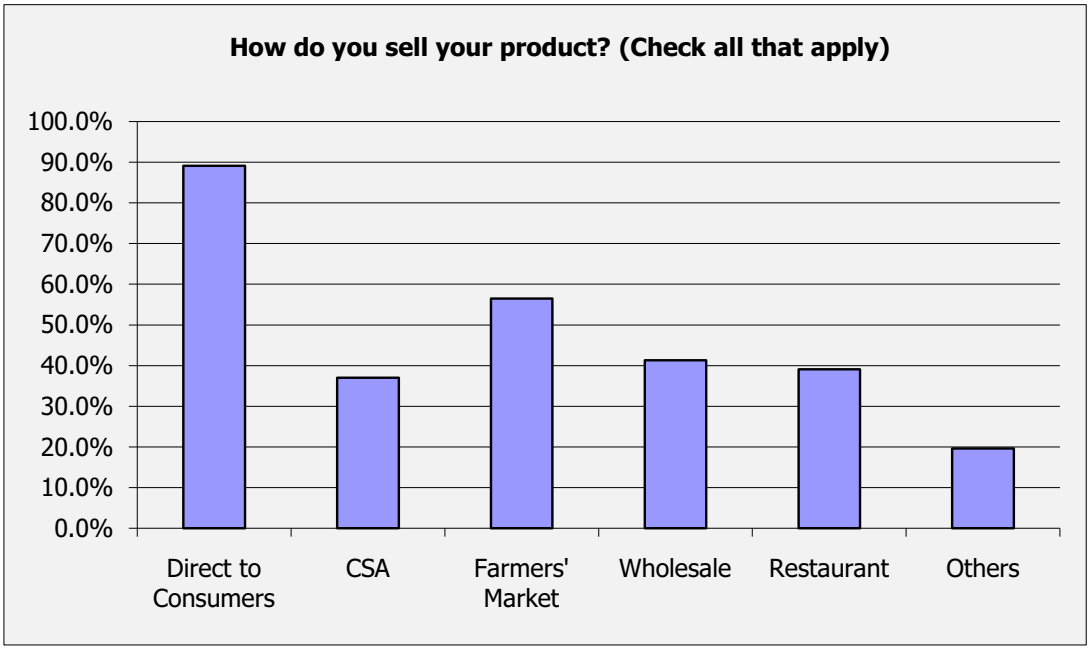
Question 11.

If you are able to charge a higher price, what is the price premium you charge over commercial grocers?		
Answer Options	**Response Percent**	**Response Count**
I am not sure	30.2%	13
None	20.9%	9

0% - 10%	7.0%	3
10% - 20%	20.9%	9
More than 20%	20.9%	9
	answered question	**43**
	skipped question	**10**

Question 12.

How do you sell your product? (Check all that apply)		
Answer Options	**Response Percent**	**Response Count**
Direct to Consumers	89.1%	41
CSA	37.0%	17
Farmers' Market	56.5%	26
Wholesale	41.3%	19
Restaurant	39.1%	18
Others	19.6%	9
	answered question	**46**
	skipped question	**7**



Question 13.

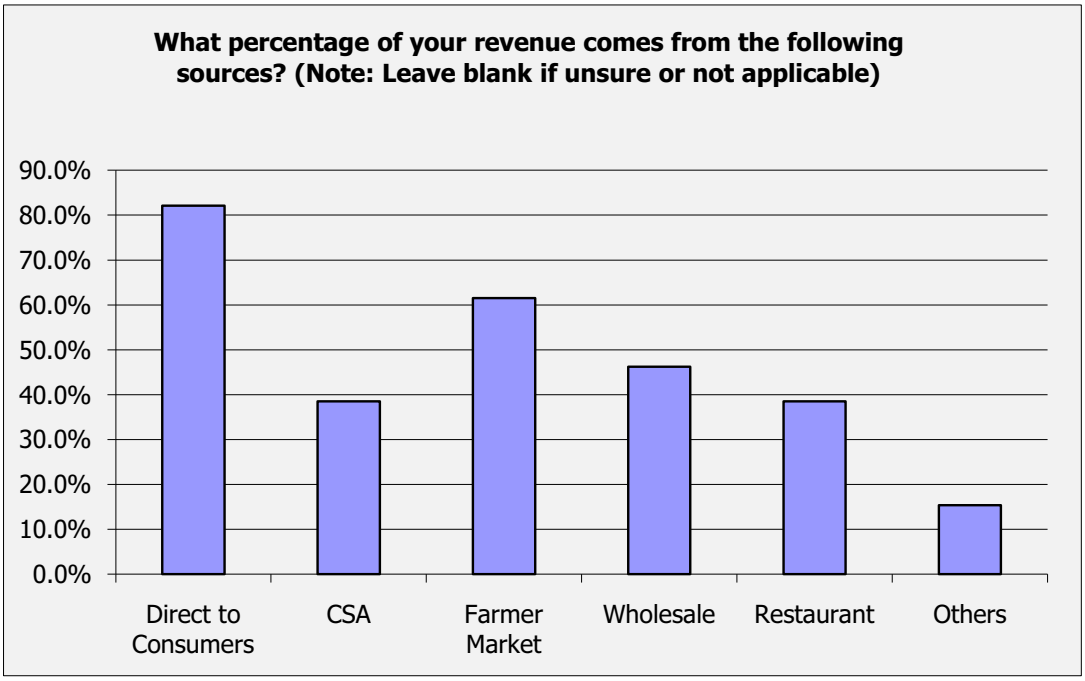
What percentage of your revenue comes from the following sources? (Note: Leave blank if unsure or not applicable)		
Answer Options	**Response Percent**	**Response Count**
Direct to Consumers	82.1%	32
CSA	38.5%	15
Farmer Market	61.5%	24
Wholesale	46.2%	18
Restaurant	38.5%	15
Others	15.4%	6
	answered question	**39**
	skipped question	**14**

Number	Direct to	CSA	Farmer	Wholesale	Restaurant	Others

	Consumers		Market			
1	25		75			
2	0					
3	100					
4	n/a	n/a	n/a	n/a	n/a	n/a
5	95			5		
6		52	39	9		
7	15.7	14.5	44.2	16.8	2.8	6
8	1	30	64		5	
9	25%	50%			25%	
10	55		40	5		
11	100					
12	75			25		
13	50		25		25	
14	1			99		
15		30	60		10	
16		80	15		1	4
17	25	25	5	45		
18		60	30	10		
19	50		50			
20	2	0	2	98		
21	100		100			
22	25	0	25	40	10	
23	20	10	40	15	5	10
24		74	5	20	1	
25	100					
26	100					
27	100					

28	55		35	5	5	
29	10			90		
30	5		20	75		
31	60	30	5		5	
32		70	25			5
33			30	60	10	
34	100					
35	50				20	30
36	100					
37	30		65		5	
38	80		10	10		
39	100					

Question 14.



What percentage of your farming revenues are profit?	
Answer Options	**Response Count**
	39
answered question	**39**
skipped question	**14**

Number	Response Date	Response Text
1	Dec 22, 2009 2:56 PM	0
2	Dec 22, 2009 3:09 PM	0
3	Dec 22, 2009 3:32 PM	0
4	Dec 22, 2009 3:34 PM	0
5	Dec 22, 2009 3:36 PM	n/a
6	Dec 22, 2009 4:06 PM	0 -2%
7	Dec 22, 2009 5:13 PM	23
8	Dec 22, 2009 7:19 PM	30
9	Dec 22, 2009 9:25 PM	not sure
10	Dec 22, 2009 9:30 PM	30
11	Dec 23, 2009 1:53 AM	0
12	Dec 23, 2009 2:07 AM	0
13	Dec 23, 2009 1:19 PM	50
14	Dec 24, 2009 11:10 PM	10
15	Dec 26, 2009 3:37 AM	very little
16	Dec 27, 2009 3:21 PM	5
17	Dec 27, 2009 6:37 PM	0
18	Dec 28, 2009 4:57 PM	0
19	Dec 29, 2009 2:31 AM	0
20	Dec 29, 2009 4:27 AM	varies from year to

		year	
21	**Dec 29, 2009 12:08 PM**		0
22	**Dec 30, 2009 2:41 AM**		10
23	**Dec 30, 2009 3:02 PM**	N/A	
24	**Jan 6, 2010 7:54 PM**		0
25	**Jan 6, 2010 8:22 PM**	not sure	
26	**Jan 6, 2010 8:42 PM**	20%	
27	**Jan 6, 2010 8:48 PM**		70
28	**Jan 6, 2010 9:32 PM**	very little	
29	**Jan 7, 2010 12:11 AM**		50
30	**Jan 7, 2010 3:15 AM**		0
31	**Jan 7, 2010 1:13 PM**		10
32	**Jan 7, 2010 4:35 PM**		40
33	**Jan 7, 2010 5:35 PM**		0
34	**Jan 7, 2010 8:34 PM**		0
35	**Jan 7, 2010 8:46 PM**	unknown	
36	**Jan 9, 2010 12:42 AM**		10
37	**Jan 9, 2010 4:20 AM**		30
38	**Jan 10, 2010 3:14 PM**		2
39	**Jan 11, 2010 6:40 PM**		20

Question 15.

What are your annual farming revenues (i.e. total sales plus any other cash inflows)?

Answer Options	**Response Count**
	32

answered question	**32**
skipped question	**21**

Number	Response Date	Response Text
1	**Dec 22, 2009 2:56 PM**	5000
2	**Dec 22, 2009 3:32 PM**	0
3	**Dec 22, 2009 3:34 PM**	10000
4	**Dec 22, 2009 3:36 PM**	Not sure yet.
5	**Dec 22, 2009 4:06 PM**	5 - 7,000
6	**Dec 22, 2009 5:13 PM**	52000
7	**Dec 22, 2009 7:19 PM**	53000
8	**Dec 22, 2009 9:25 PM**	not sure... 2009 was our first year farming commercially, and it was only a (successful) pilot
9	**Dec 22, 2009 9:30 PM**	15k
10	**Dec 23, 2009 2:07 AM**	15000
11	**Dec 24, 2009 11:10 PM**	50000
12	**Dec 26, 2009 3:37 AM**	about $100,000
13	**Dec 27, 2009 6:37 PM**	12000
14	**Dec 28, 2009 4:57 PM**	100000
15	**Dec 29, 2009 2:31 AM**	around $1000.00 generally gross
16	**Dec 29, 2009 4:27 AM**	$100,000 - $175,000 range
17	**Dec 29, 2009 12:08 PM**	25000
18	**Dec 30, 2009 2:41 AM**	3000

19	**Dec 30, 2009 3:02 PM**	N/A
20	**Jan 6, 2010 7:54 PM**	0
21	**Jan 6, 2010 8:22 PM**	800000
22	**Jan 6, 2010 8:42 PM**	>$50K
23	**Jan 6, 2010 8:48 PM**	200000
24	**Jan 6, 2010 9:32 PM**	6000
25	**Jan 7, 2010 4:35 PM**	45000
26	**Jan 7, 2010 5:24 PM**	50000
27	**Jan 7, 2010 5:35 PM**	Since we started our partnership business in 2009, we have not made a profit in the first year.
28	**Jan 7, 2010 8:34 PM**	20000
29	**Jan 7, 2010 8:46 PM**	variable - 30 to 40 K
30	**Jan 9, 2010 12:42 AM**	2500
31	**Jan 10, 2010 3:14 PM**	total sales plus agricultural tourism (farm visits)
32	**Jan 11, 2010 6:40 PM**	1500

Question 16.

How did you find the land that you currently farm?	
Answer Options	**Response Count**
	42

answered question	**42**
skipped question	**11**

Number	Response Date	Response Text
1	Dec 22, 2009 2:56 PM	realtor
2	Dec 22, 2009 3:32 PM	Searched the area
3	Dec 22, 2009 3:34 PM	agent
4	Dec 22, 2009 3:36 PM	We talked with a local realtor and explained that we were looking for commercial space where we could grow mushrooms indoors.
5	Dec 22, 2009 4:06 PM	Worked through realtors
6	Dec 22, 2009 4:29 PM	word of mouth
7	Dec 22, 2009 5:13 PM	Online
8	Dec 22, 2009 7:19 PM	through a friend
9	Dec 22, 2009 9:25 PM	in the family
10	Dec 22, 2009 9:30 PM	real estate agent
11	Dec 23, 2009 1:53 AM	local
12	Dec 23, 2009 2:07 AM	family
13	Dec 23, 2009 1:19 PM	Driving around the state, looking for "FOR SALE SIGNS"
14	Dec 23, 2009 3:17 PM	family business
15	Dec 23, 2009 10:56 PM	BOUGHT IT FROM NEIGHBORS
16	Dec 24, 2009 11:10 PM	Amish neighbor told my father-in-law it was for sale.
17	Dec 26, 2009 3:37 AM	I grew up on it
18	Dec 27, 2009 3:21 PM	Real estate agent
19	Dec 27, 2009 6:37 PM	purchased in 1982
20	Dec 28, 2009 4:57 PM	Word of mouth
21	Dec 29, 2009 2:31 AM	traveling through the area, looking in local newspapers
22	Dec 29, 2009 4:27 AM	family has farmed here since 1857, so long term relationships

		with many in community
23	Dec 29, 2009 12:08 PM	sign
24	Dec 30, 2009 2:41 AM	went for sale near where we were previously living
25	Dec 30, 2009 3:02 PM	Friend
26	Dec 31, 2009 7:58 PM	realtor.com
27	Jan 6, 2010 8:13 PM	family farm
28	Jan 6, 2010 8:22 PM	real estate broker, my mother in law, 27 years ago
29	Jan 6, 2010 8:42 PM	MLS/Remax
30	Jan 6, 2010 9:32 PM	realtor
31	Jan 7, 2010 12:11 AM	belonged in the family
32	Jan 7, 2010 3:15 AM	family
33	Jan 7, 2010 4:35 PM	realtor.com
34	Jan 7, 2010 5:24 PM	College Farm
35	Jan 7, 2010 5:35 PM	Partly owned by the family of my partner.
36	Jan 7, 2010 8:29 PM	owned by a relative
37	Jan 7, 2010 8:34 PM	knocked on doors
38	Jan 7, 2010 8:46 PM	refered by friend - bought direct without broker or any other
39	Jan 9, 2010 12:42 AM	knew the owner
40	Jan 9, 2010 4:20 AM	word of mouth
41	Jan 10, 2010 3:14 PM	purchased in 1945 by father
42	Jan 11, 2010 6:40 PM	real estate agent

Question 17.

Would you rather have your long-term investments in 401Ks/mutual funds or owning farm land?

Answer Options	Response Percent	Response Count
Yes	47.8%	11
No	52.2%	12

Why or Why Not?	31
answered question	**23**
skipped question	**30**

Number	Response Date	Why or Why Not?
1	Dec 22, 2009 2:56 PM	can't answer this question--the phrasing is off Would rather own the land because we can always do something with the land.
2	Dec 22, 2009 3:32 PM	Better return on investment
3	Dec 22, 2009 3:34 PM	Land is more fun
4	Dec 22, 2009 3:36 PM	Not sure.
5	Dec 22, 2009 4:06 PM	I feel that a balance is important for a retiree in this economic environment.
6	Dec 22, 2009 4:29 PM	Not sure
7	Dec 22, 2009 5:13 PM	Not an either/or. Never put all your eggs in one basket.
8	Dec 22, 2009 9:30 PM	Would prefer to pass the land and farm to a family member than be forced to sell it to retire.
9	Dec 23, 2009 1:53 AM	they are not making any more land.
10	Dec 23, 2009	I enjoy farming

	2:07 AM Dec 23, 2009	
11	1:19 PM Dec 23, 2009	No to the first pasrt of the question. And Yes to the second. We would rather invest in owning farm land.
12	3:17 PM Dec 23, 2009	land is forever
13	10:56 PM Dec 26, 2009	HAVE THE FARM BUT IT WOULD BE NICE TO AFFORD BOTH OF THEM That's an "either/or" question, not a "yes or no" question.
14	3:37 AM Dec 27, 2009	Real estate in general and farm land in particular are limited resources and escalating in value
15	3:21 PM Dec 28, 2009	question is unclear
16	4:57 PM Dec 29, 2009	Poorly worded question. I'd do both. I would like to have some sort of "long term investment". Our land is worth about $2000.00 an acre (including buildings) on the high side -- it is not premium farmland so I am not sure we will get a great return from it as an
17	2:31 AM Dec 29, 2009	"investment". At best I would hope it could help us "step up" to something better should we want to relocate. this is not worded as a yes or no question. we would much rather have our "retirement" invested in farmland rather
18	4:27 AM Dec 29, 2009	than in a 401k, mutual fund or other type of financial fund this question makes no sense at all--how can I respond yes or no to an either/or question? What if I decide I want
19	12:08 PM Dec 30, 2009	BOTH?
20	3:02 PM Jan 6, 2010	401Ks put there trust in untrustworthy greedy people can't make more land
21	8:22 PM	can make more paper
22	Jan 6,	Wording of your Q. is hokie.

	2010 8:42 PM	I'd rather own an appreciating asset. Especially with the nuts in our government...right now.
		401K is vapor, land is concrete!
23	Jan 6, 2010 9:32 PM	our farm is for our present lifestyle and investment in our current life, it isn't seen as a long-term financial investment
24	Jan 7, 2010 4:35 PM	have both!
25	Jan 7, 2010 5:35 PM	I would rather own land to grow our own food and to sustain a living off the land in a community based situation. Question seems ambiguous (not yes/no the way it is phrased) I would rather have farm land than 401k because I can better control how much I make (yield) on the land than the 401k which is managed by someone else. Also- would only consider investing in a 401k if it invests in sustainable sectors and doesn't rely on industrial oil based economy (because I am not stupid ;)
26	Jan 7, 2010 8:29 PM	
27	Jan 7, 2010 8:34 PM	Bad question, not worded for yes/no. Long term investments are in a diverse portfolio that includes many things.
28	Jan 9, 2010 8:46 PM	land has intrinsic value - farming is a life style as well as a vocation this is an either/or question with a yes/no answer!
29	Jan 9, 2010 12:42 AM	I would prefer owning farm land
30	Jan 9, 2010 4:20 AM	this question doesn't make sense.

	Jan 10, 2010	
31	**3:14 PM**	love of the land

Question 18.

If you were setting out to start a new farm, how would you find land to farm?

Answer Options	**Response Count**
	34
answered question	**34**
skipped question	**19**

Number	**Response Date**	**Response Text**
1	**Dec 22, 2009 2:56 PM**	Tell everyone I know; talk with local farmers;
2	**Dec 22, 2009 3:32 PM**	check listings and do a search of the area
3	**Dec 22, 2009 3:34 PM**	agent
4	**Dec 22, 2009 3:36 PM**	I would talk to community members who are connected with insider information. I would also employ a realtor to help me find land. I may also talk to a land trust or other organization that may have knowledge about farming cooperatives.
5	**Dec 22, 2009 4:06 PM**	That would depend entirely on whether or not you were from the local farming community.
6	**Dec 22, 2009 4:29 PM**	An outsider (as I was) has to use realtors.
7	**Dec 22, 2009 5:13 PM**	Internet, ag publications
8	**Dec 22, 2009 9:25 PM**	Online
9	**Dec 22, 2009 9:30 PM**	PASA
		Join an organization such as PASA and talk to

		people//farmers.. look for a turnkey operation.
10	**Dec 23, 2009 1:53 AM**	find a retiree
11	**Dec 23, 2009 2:07 AM**	net work
12	**Dec 23, 2009 1:19 PM**	word of mouth.
13	**Dec 23, 2009 3:17 PM**	talk to neighbors
14	**Dec 24, 2009 11:10 PM**	Search high and wide for a local community that operates under the same values.
15	**Dec 26, 2009 3:37 AM**	Through organizations like PASA, Farm Link and Maysie's Farm Conservation Center.
16	**Dec 27, 2009 3:21 PM**	www.farmlink.net
17	**Dec 28, 2009 4:57 PM**	Word of mouth, craiglist, PASA Classified, feed stores.
18	**Dec 29, 2009 2:31 AM**	Decide on the region of interest, then use internet and newspapers to find listings.
19	**Dec 29, 2009 4:27 AM**	depends upon type of farm. for dairy need a market and suitable area/infrastructure
20	**Dec 29, 2009 12:08 PM**	real estate agent
21	**Dec 30, 2009 3:02 PM**	Look around. There is plenty of land here.
22	**Dec 31, 2009 7:58 PM**	Internet, networking
23	**Jan 6, 2010 8:22 PM**	ask another farmer
24	**Jan 6, 2010 8:42 PM**	Door to door and ask!
25	**Jan 6, 2010 9:32 PM**	leave this township
26	**Jan 7, 2010 3:12 PM**	We already know what land we want to purchase. It's a matter of saving the money to invest in the property.
27	**Jan 7, 2010 4:35 PM**	realtor.com

28	Jan 7, 2010 5:35 PM	Within the agricultural magazines, there are ads for lease to own options. As well as groups of people sharing equipment resources to start their farm business and operation (more for an urban setting).
29	Jan 7, 2010 8:29 PM	price is limiting factor for me so I would have to start there. In a perfect world... I 'd chose a site that had access to water sources (ponds/streams..) located in an area that has infrastructure (aka...it wouldn't be out in the middle of no where) for both practical and environmental reasons (I'd prefer to leave contiguous natural areas alone and farm closer to the people who would buy my products)
30	Jan 7, 2010 8:34 PM	County soil surveys, county tax records, drive around, knock on doors with a prepared handout/offer.
31	Jan 7, 2010 8:46 PM	look at ads for farms in the "Lancaster Farmer" agriculture mewspaper
32	Jan 9, 2010 12:42 AM	talk to current farmers
33	Jan 9, 2010 4:20 AM	advertise in local penney saver circular in areas that I am looking to lease
34	Jan 11, 2010 6:40 PM	Direct contact with owners.

Question 19.

Why did you decide to pursue sustainable farming? (Check all that apply)		
Answer Options	**Response Percent**	**Response**

		Count
Personal Satisfaction	93.6%	44
Healthy Food	85.1%	40
Lifestyle and Freedom	78.7%	37
Financial Security and Wealth Creation	25.5%	12
Other Factors	23.4%	11
Please explain Other Factors (if applicable):		14
	answered question	**47**
	skipped question	**6**

Number	Response Date	Please explain Other Factors (if applicable):
1	Dec 22, 2009 3:09 PM	Conservation
2	Dec 22, 2009 5:13 PM	Environment
3	Dec 23, 2009 10:56 PM	COULDN'T MAKE IT 10 YRS AGO WITH SMALLER ACERAGE AND CONVENTIOAL FARMING
4	Dec 26, 2009 3:37 AM	I'm a conservationist, and working toward a local, sustainable food system seemed to be the greatest educational need in southeast PA
5	Dec 29, 2009 2:31 AM	Now I'm in it for the healthy food, but that was not a large part of my original thinking.
6	Dec 29, 2009 4:27 AM	for the health and well-being of land, livestock, family, community, environment
7	Jan 7, 2010 3:15 AM	Least stressful and most successful in meeting our goals

8	**Jan 7, 2010 4:11 PM**	Legislative directive
9	**Jan 7, 2010 5:24 PM**	Education
10	**Jan 7, 2010 5:35 PM**	Repairing the damage of conventional agriculture on the land.
11	**Jan 7, 2010 8:34 PM**	symbiotic with other life pursuits
12	**Jan 9, 2010 12:42 AM**	for the sake of the planet
13	**Jan 9, 2010 4:20 AM**	love of animals; scientific/biological interest
14	**Jan 10, 2010 3:14 PM**	environmental protection

Question 20.

On a scale of 1-10, 10 being the highest, how important is it that you own the land that you farm?

Answer Options	**Response Count**
	45
answered question	**45**
skipped question	**8**

Number	**Response Date**	**Response Text**
1	**Dec 22, 2009 2:56 PM**	10
2	**Dec 22, 2009 3:09 PM**	10
3	**Dec 22, 2009 3:32 PM**	10
4	**Dec 22, 2009 3:34 PM**	10
5	**Dec 22, 2009 3:36 PM**	10
6	**Dec 22, 2009 4:06 PM**	10
7	**Dec 22, 2009 4:29 PM**	7
8	**Dec 22, 2009 5:13 PM**	10
9	**Dec 22, 2009 7:19 PM**	9
10	**Dec 22, 2009 9:25 PM**	10

11	**Dec 22, 2009 9:30 PM**	10
12	**Dec 23, 2009 1:53 AM**	10
13	**Dec 23, 2009 2:07 AM**	2
14	**Dec 23, 2009 1:19 PM**	10
15	**Dec 23, 2009 3:17 PM**	10
16	**Dec 23, 2009 10:56 PM**	10
17	**Dec 24, 2009 11:10 PM**	10
18	**Dec 26, 2009 3:37 AM**	It's very important that I own the homestaed - it's where I grew up, it's the only asset I have - but it's not that important that I own all the land which I farm
19	**Dec 27, 2009 3:21 PM**	8
20	**Dec 27, 2009 6:37 PM**	5
21	**Dec 28, 2009 4:57 PM**	9
22	**Dec 29, 2009 2:31 AM**	10
23	**Dec 29, 2009 4:27 AM**	10 - because it is too risky to invest much in land that may be lost (but as a business start up, it makes more sense to rent land and build equity in livestock, equipment, etc.)
24	**Dec 29, 2009 12:08 PM**	10
25	**Dec 30, 2009 2:41 AM**	9
26	**Dec 30, 2009 3:02 PM**	8
27	**Dec 31, 2009 7:58 PM**	10
28	**Jan 6, 2010 8:13 PM**	10
29	**Jan 6, 2010 8:22 PM**	10
30	**Jan 6, 2010 8:42 PM**	5

31	**Jan 6, 2010 8:48 PM**	8
32	**Jan 6, 2010 9:32 PM**	10
33	**Jan 7, 2010 12:11 AM**	10
34	**Jan 7, 2010 1:13 PM**	10
35	**Jan 7, 2010 3:12 PM**	9
36	**Jan 7, 2010 4:35 PM**	10
37	**Jan 7, 2010 5:35 PM**	7-I'm not sure if I want to continue to live in the rural area due to the lack of community and young people. Thus, I may seek other locations to operate/work in relation to food production and sustainability.
38	**Jan 7, 2010 8:29 PM**	9
39	**Jan 7, 2010 8:34 PM**	10, working with landowners on leases is difficult and inconsistent
40	**Jan 7, 2010 8:46 PM**	10
41	**Jan 9, 2010 12:42 AM**	10
42	**Jan 9, 2010 4:20 AM**	1
43	**Jan 9, 2010 5:37 AM**	10
44	**Jan 10, 2010 3:14 PM**	10
45	**Jan 11, 2010 6:40 PM**	5

Question 21.

Would you rather:		
Answer Options	**Response Percent**	**Response Count**

Pay more to own the land that you farm?	83.3%	30
Pay less to rent the land that you farm?	16.7%	6
Why?		33
	answered question	**36**
	skipped question	**17**

Number	Response Date	Why?
1	Dec 22, 2009 3:09 PM	Security of use and ability to plan and project into the future.
2	Dec 22, 2009 3:32 PM	Freedom.
3	Dec 22, 2009 3:34 PM	I can maintain it
4	Dec 22, 2009 3:36 PM	Not sure at this pioint. I know a lot of my answers are not helpful, but we just started our mushroom operation in October 2009. Thanks for understanding that we're new to the field.
5	Dec 22, 2009 4:06 PM	I would not rent to farm regardless of the price
6	Dec 22, 2009 4:29 PM	Not sure, probably want to own, or at least own house and rent land.
7	Dec 22, 2009 5:13 PM	Rent goes out the door forever. Ownership doesn't.
8	Dec 22, 2009 7:19 PM	Leasing greatly complicates permanent infrastructure investment decisions. As a landowner, I greatly value the security and freedom of being able to structure our

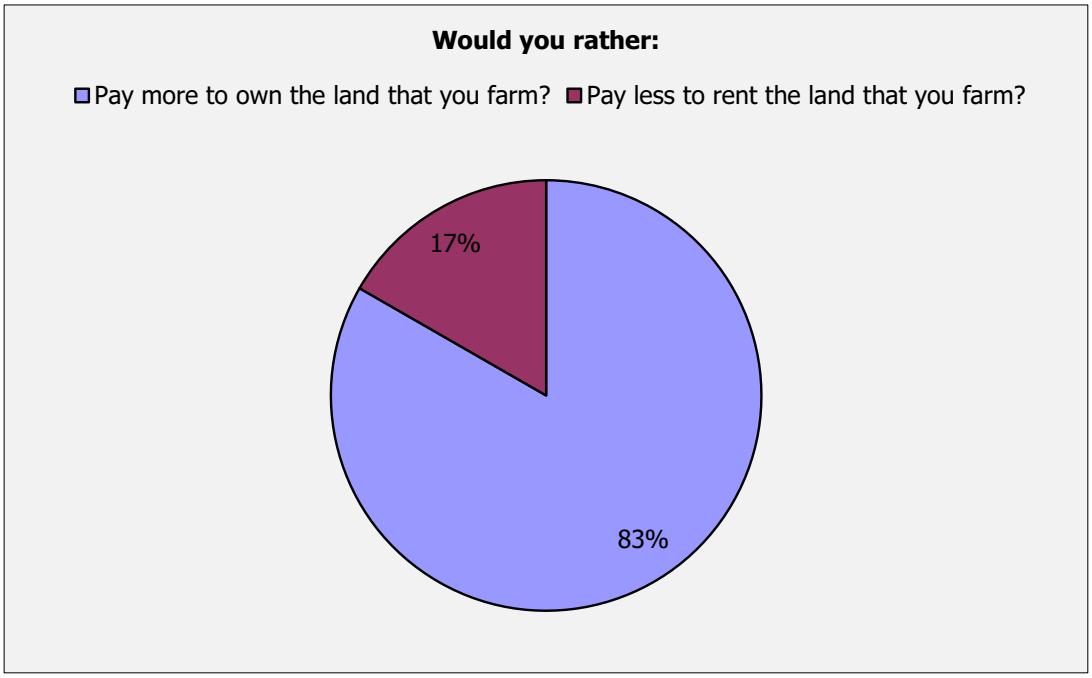
		operation in a way that we feel is optimal without having to get permission from a land owner to make infrastructure investments or worry about future recovery of the value in infrastructure investments that are fixed to the land
		to have control over the land, the way it is treated, and its destiny. in addition to the multitude of obvious advantages and benefits
9	**Dec 22, 2009 9:25 PM**	to ownership as opposed to renting
		Pass the farm to a family member.
		Investment in the land and the operation can be large monetarily and also from a labor standpoint -would want to reap the benefits
10	**Dec 22, 2009 9:30 PM**	of what we have sown.
11	**Dec 23, 2009 2:07 AM**	can put more into returnable assets--cattle
		Why would we want to pay more for
12	**Dec 23, 2009 1:19 PM**	anything?
		WHEN YOUR ORGANIC YOU NEED TO BE
13	**Dec 23, 2009 10:56 PM**	ABLE TO CONTROLL YOUR DESTINY
		I think land ownership is one of the securest
14	**Dec 24, 2009 11:10 PM**	ways to invest and "have" something.

		How much more or less is the question . . . .
		I would be very interested to know about any schemes you might come up with to assist new farmers, since the shortage of new farmers is the biggest impediment to implementing my vision of a local, sustainable food system. I am especially interested in ideas that would allow immigrant farmers to begin building equity on land that they cannot afford to purchase, since I see the immigrant population as a great, untapped source of potential new farmers. I look forward to hearing about the results of your work.
15	**Dec 26, 2009 3:37 AM**	Thanks - Sam Cantrell, Sam@maysiesfarm.org
		There's a lot of labor investment that goes into farming and I hate to leave it behind and move onto some other farm and put that same energy back into building up the soil
16	**Dec 28, 2009 4:57 PM**	and crops for someone else again . . .
		When I own, the money I put into the land will (should...) come back to benefit me. I also have full freedom on how I manage my land, how I farm, etc. (given state and federal regulations...). Renting means land improvements benefit the owner more than the farmer; the rent paid is never recovered,
17	**Dec 29, 2009 2:31 AM**	as mortgage payments are upon the sale of

		the property. Renting means a certain amount of "red tape" in that any type of improvements, etc., ultimately have to be approved by the land owner.
18	Dec 29, 2009 4:27 AM	if we were just beginning to farm we'd hope to rent good farmland as reasonably as possible to free up money for investment in livestock, equipment and for use in operating expenses. however, any land subject to significant investment (ie. buildings, ponds, other infrastructure, or long term crops) we'd prefer to own to ensure best protection of value of investment
19	Dec 29, 2009 12:08 PM	There is a need for both...it is important to have a "base" which is owned (and typically also a home). For initial start up and for housing tools and equipment, you want to own. Once up and running, then expansion strategy can be buying or renting land or both. For livestock operations renting is involved--water and electric sources; fence building or maintenance; initial seeding costs--longer term multi-year contracts would be needed. Farmers are not likely to want to engage attorneys for such a transaction yet this would be appropriate considering all the issues involved...

20	**Dec 30, 2009 3:02 PM**	Not sure. I rent because it is convenient. I am not sure that is a good question. If we had to do it all over and a good opportunity came along that allowed me a 100 year lease to farm. I may not have invested the cash debt to farm.
21	**Jan 6, 2010 8:22 PM**	Other opportunities didn't exist- the chance to farm without owning, and a long term lease. Rent is tied to current income.
22	**Jan 6, 2010 8:42 PM**	Ownership is income plus appreciation, plus tax advantages, plus pride in ownership. When you own...you know and trust the landlord....when you rent...well you Know the REST OF THE STORY!
23	**Jan 6, 2010 9:32 PM**	Control over outcome
24	**Jan 7, 2010 3:12 PM**	I want to know that the land is mine to alter, without fear of losing it.
25	**Jan 7, 2010 4:35 PM**	infrastructure is expensive and needed, want to invest in my own property and be able to use for years to come
26	**Jan 7, 2010 5:35 PM**	My first priority is to find a community, then buy land to farm.
27	**Jan 7, 2010 8:29 PM**	control of the land (cannot be sold by owner after I have spent $, time, effort getting it into optimum production)

28	Jan 7, 2010 8:34 PM	Bottom line is making money, owning land is not a money maker, leasing land, and paying less then what you can generate on it is more profitable.
29	Jan 7, 2010 8:46 PM	Because ownership increases in value over the long run and in many cases is the final payoff to a farmer
30	Jan 9, 2010 12:42 AM	I farm to leave the land better than when I acquired it and I would not want all my planning and hard work to come to naught if the rental agreement were to be terminated
31	Jan 9, 2010 4:20 AM	I do not pay for the land i use for my sheep.
32	Jan 10, 2010 3:14 PM	the question is not applicable
33	Jan 11, 2010 6:40 PM	Current morgage is keeping my operation from growing.



Appendix D Agriculture Easement Data

Easement data provided by Montgomery County Farmland Preservation Program

Year	Acres	$/acre	Year	Acres	$/acre	Year	Acres	$/acre
1992	60.31	$4,515	1998	10.92	$4,528	2003	53.46	$5,770
1992	74.72	$4,416	1998	39.97	$9,800	2003	57.02	$20,160
1992	70.35	$4,833	1998	86.34	$3,559	2003	43.66	$21,235
1992	95.13	$4,126	1998	43.77	$3,900	2003	73.07	$5,070
1992	148.31	$4,055	1998	280.94	$4,800	2003	87.26	$3,130
1992	78.87	$4,121	1999	123.76	$3,750	2003	42.61	$3,230
1992	163.63	$15,158	1999	28.72	$5,500	2003	74.08	$4,985
1993	66.19	$2,965	1999	56.6	$4,120	2003	21.91	$9,500
1993	45.35	$4,961	1999	10	$4,120	2003	19.16	$1,800
1993	64.6	$6,759	1999	61.28	$4,700	2004	28.17	$35,109
1993	76.56	$3,389	1999	50.54	$4,300	2004	77.68	$42,954
1993	109.62	$3,879	1999	101.2	$4,100	2004	56.92	$17,425
1993	73	$3,902	1999	123.47	$3,750	2004	50.09	$21,000
1994	71.9	$5,702	1999	29.7	$12,000	2005	22.77	$7,080
1994	53.49	$6,800	1999	66.36	$5,000	2005	52.97	$53,996
1994	79.03	$4,500	2000	71	$10,000	2005	29.04	$41,850
1994	161.03	$4,450	2000	75.87	$2,001	2005	54.21	$11,500
1994	82.53	$4,500	2000	16.26	$3,500	2005	26.54	$17,118
1995	133.6	$3,817	2000	120.79	$4,170	2005	72.72	$32,000
1995	78.19	$3,006	2001	56.37	$4,530	2005	47.68	$5,800
1995	60.44	$8,500	2001	39.46	$5,025	2005	52.78	$5,700
1995	102.36	$4,323	2001	67.05	$4,800	2006	46.04	$7,710
1995	106.85	$4,606	2001	103.64	$17,046	2006	56.08	$47,303
1995	96.01	$16,103	2001	11.4	$1	2006	40.35	$44,141
1995	27	$3,611	2001	80.49	$4,885	2006	93.66	$29,984
1995	60.9	$11,131	2001	20.35	$4,535	2007	52.91	$39,950
1996	42.75	$3,579	2001	14.95	$5,000	2007	73.08	$22,780
1996	121.82	$4,195	2001	52.91	$16,464	2007	44.71	$45,000
1996	72.22	$7,700	2001	40.86	$18,501	2007	44.56	$45,992
1997	50.09	$4,492	2002	10	$6,640	2007	101.52	$39,893
1997	101	$3,459	2002	14.26	$6,510	2007	22.74	$40,200
1998	74	$2,600	2002	55.61	$18,067	2008	89.57	$32,198
1998	20	$0	2002	32.64	$8,974	2008	47.22	$14,298
1998	90.65	$2,899	2002	22.04	$5,415	2008	75	$19,002
1998	94.84	$3,652	2002	97.62	$7,003	2008	83.53	$10,600
1998	46.43	$4,200	2002	10.74	$19,500	2009	26	$32,151
1998	44.89	$7,100	2002	38.4	$4,963	2009	42.41	$46,408
1998	48.29	$9,800	2002	124.44	$13,310			
1998	72.96	$4,499	2003	15.71	$5,530			

Table 2: Transfer Data

Date	Acres	Price	Total price	Date	Acres	Price	Total price
7/10/2008	67.05	DNP	$1	11/29/2002	37.50	$7,013	$263,000
1/30/2008	78.87	$11,411	$900,000	9/24/2002	16.26	$19,988	$325,000
1/7/2008	15.34	DNP	$1	6/14/2002	39.00	$4,487	$175,000
1/7/2008	52.91	DNP	$1	6/6/2002	43.77	$9,481	$415,000
4/19/2007	74.72	$9,368	$700,000	5/30/2002	39.46	$6,006	$237,000
4/5/2007	29.04	$23,454	$681,200	3/25/2002	27.00	DNP	$1
2/1/2007	97.62	$7,427	$725,000	12/11/2001	102.36	DNP	$1
12/15/2006	73.00	$11,644	$850,000	5/24/2001	54.90	$2,452	$134,600
11/30/2006	14.26	$23,492	$335,000	3/1/2001	86.34	$5,038	$435,000
9/22/2006	29.04	$21,519	$625,000	5/31/2000	75.87	$7,249	$550,000
5/16/2006	148.31	$7,821	$1,160,000	3/30/2000	28.72	DNP	$1
1/31/2006	10.00	$45,000	$450,000	1/18/2000	101.20	DNP	$1
12/16/2005	76.56	$14,368	$1,100,000	12/15/1999	61.28	$9,168	$561,800
7/22/2005	60.44	$12,409	$750,000	6/30/1999	78.19	$6,075	$475,000
7/21/2005	15.71	DNP	$1	4/30/1999	60.31	$6,135	$370,000
6/21/2005	32.64	$17,616	$575,000	4/20/1998	72.96	DNP	$1
6/13/2005	60.90	DNP	$1	2/20/1998	90.65	$2,063	$187,000
1/13/2005	29.70	DNP	$1	1/6/1997	121.82	$2,873	$350,000
1/1/2005	78.87	DNP	$1	11/21/1996	95.13	$2,523	$240,000
6/1/2004	28.17	$5,016	$141,288	9/30/1994	60.31	$3,814	$230,000
5/14/2006	76.56	$12,409	$950,000	9/14/2003	66.19	DNP	$1
2/26/2004	57.02	$4,384	$250,000	1/8/1993	148.31	$2,023	$300,000
1/30/2004	44.98	$9,449	$425,000	9/23/2003	42.61	DNP	$1
1/26/2004	46.43	$10,769	$500,000	2/18/2003	71.00	DNP	$1
Average price of farm transfers				$5,606.14			
Average price not including $1 farms				$10,423			

Notes:

1. Data provided by Montgomery County Farmland Preservation Program.
2. Forty-eight transfers have occurred from 1994 to 2009.
3. Fifteen transfers have been for $1; usually meaning transfer within family.

DNP: Data not provided.

Chart 1: Prices Paid Per Acre By Montgomery County To Purchase Ag. Easement Rights (1992-2009)

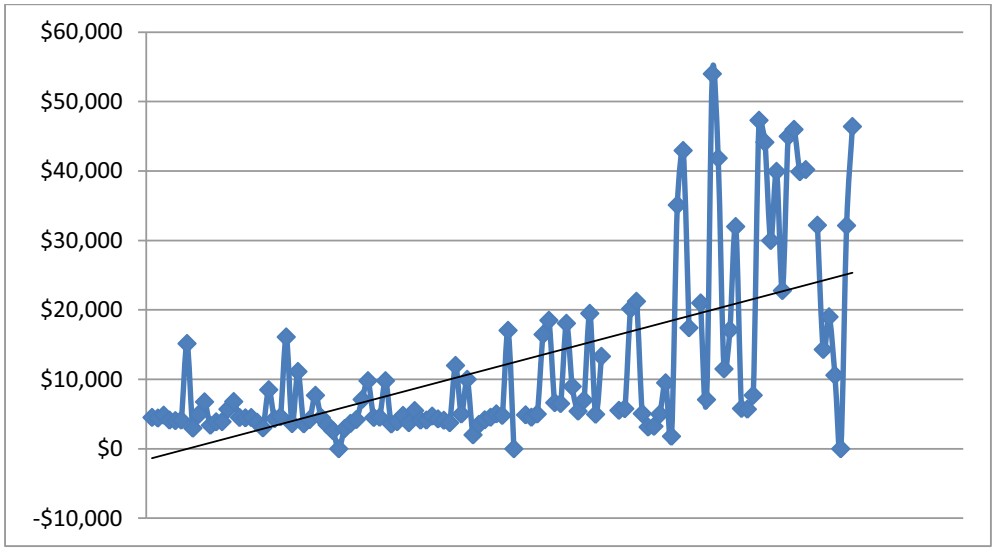
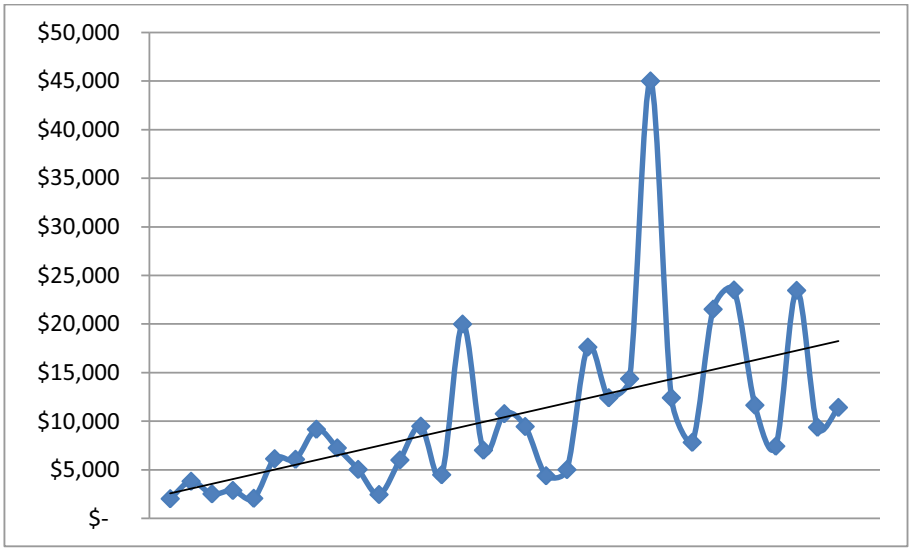


Chart 2: Land Transfer Prices of Farms Under Ag. Easement –Montgomery County, PA (1994-2009)



Note: Data adjusted to remove $1 transfers (family members).

Table 3: PA county Easement data

PA DEPARTMENT OF AGRICULTURE
Summary of Agricultural Conservation Easements by County - 8/28/2008

County	No. of Farms	No. of Acres	Purchase Price	Average Price Per Acre
Adams	120	17,192	28,390,938	1,651
Allegheny	15	1,689	10,586,811	6,267
Armstrong	2	128	256,098	2,000
Beaver	16	1,757	4,034,034	2,296
Bedford	13	2,713	1,621,067	597
Berks	544	57,351	117,277,737	2,045
Blair	36	5,250	4,689,127	893
Bradford	8	1,761	1,337,238	759
Bucks	101	9,426	81,984,039	8,698
Butler	35	4,115	11,775,494	2,862
Cambria	8	1,441	1,540,283	1,069
Carbon	15	1,200	2,485,832	2,071
Centre	34	5,747	11,136,105	1,938
Chester	218	19,945	106,271,260	5,328
Clinton	18	1,794	1,714,408	956
Columbia	25	2,690	2,574,436	957
Crawford	2	310	310,453	1,000
Cumberland	108	13,358	32,712,255	2,449
Dauphin	122	12,143	16,725,176	1,377
Delaware	2	198	2,678,360	13,527
Erie	49	5,886	10,559,444	1,794
Fayette	10	1,225	1,343,560	1,097
Franklin	103	14,023	25,359,165	1,808
Fulton	3	189	512,362	2,717
Greene	1	108	108,323	1,000
Huntingdon	4	418	628,257	1,504
Indiana	5	578	957,490	1,656
Juniata	10	1,271	1,175,282	925
Lackawanna	38	3,544	5,766,431	1,627
Lancaster	582	51,014	124,692,555	2,444
Lawrence	17	1,597	1,618,970	1,014
Lebanon	114	13,842	21,366,325	1,544
Lehigh	224	18,326	53,466,957	2,918
Luzerne	20	2,050	5,272,890	2,573
Lycoming	56	7,360	6,777,002	921
Mercer	37	6,354	5,032,030	792
Mifflin	15	1,764	1,839,848	1,043
Monroe	81	5,877	14,828,073	2,523
Montgomery	111	7,410	75,810,438	10,231
Montour	10	798	658,679	825
Northampton	94	10,302	39,709,148	3,854
Northumberland	14	1,732	1,919,156	1,108
Perry	34	5,664	3,717,981	656
Potter	4	614	415,418	677
Schuylkill	87	9,724	10,190,417	1,048
Snyder	20	2,199	2,501,709	1,138
Somerset	6	726	1,575,706	2,170
Sullivan	5	482	486,680	1,010
Susquehanna	25	5,493	4,168,884	759
Tioga	11	1,574	1,370,884	871
Union	56	5,922	6,924,727	1,169
Warren	1	152	151,652	1,000
Washington	22	3,303	5,852,379	1,772
Wayne	32	4,487	4,854,193	1,082
Westmoreland	66	9,268	19,747,501	2,131
Wyoming	8	1,038	985,682	950
York	217	34,663	55,612,491	1,604
Grand Total	**3,634**	**401,185**	**958,059,836**	**2,388**

Appendix E Worksheet

1. Farm Income

Assumption: Primary CSA, but some farmer's markets house on-site

Table 1: Projected Budget 2009

Year		4		5
	Acres in Production	22		22
	Projected Expenses	**2008 Actual**		**2009**
	Administrative	$ 1,790.00		$ 2,200.00
	Advertising	$ 730.00		$ 800.00
Capital				
	Potato Digger	$ 6,500.00	GH2/3	$ 7,000.00
	Rototiller	$ 5,860.00	Well/Irrigation	$ 24,000.00
	Compost Turner	$ 4,000.00		$ 4,000.00
	Education	$ 415.00		$ 650.00
	Farmer's Market Fees/Supplies	$ 1,910.00		$ 2,000.00
	Fuel (Farmhouse heat/vehicles)	$ 5,100.00		$ 5,500.00
	Garbage	$ 845.00		$ 900.00
Ins.	Liability	$ 385.00		$ 400.00
	Tractor	$ 710.00		$ 800.00
	Auto	$ 930.00		$ 1,825.00
	Workman's Comp	$ 925.00		$ 1,200.00
	Local Food			$ 1,000.00
Payroll				
	Farmer's Guaranteed Payments	$ 42,450.00		$ 42,600.00
	IRA TnT	$ 6,000.00		$ 6,000.00
	Interns	$ 11,440.00		$ 25,000.00
	MESA stewart	$ 7,930.00		
	Part-time workers	$ 6,500.00		$ 20,000.00
	Payroll taxes	$ 2,530.00		$ 4,000.00
	Professional Fees	$ 4,020.00		$ 4,000.00

Rent	Land		$ 4,200.00		$ 6,630.00
	TnT Housing		$ 15,600.00		$ 14,400.00
	Intern Housing		$ 14,050.00		$ 13,980.00
	Repairs/Maintenance		$ 3,140.00		$ 4,000.00
	Seeds/Plants		$ 9,870.00		$ 16,000.00
Supplies	Row covers		$ 1,025.00		$ 2,000.00
	Tools and Hardware		$ 8,925.00		$ 9,500.00
	Soil Mix		$ 3,655.00		$ 3,500.00
	Soil Amendments		$ 4,220.00		$ 7,000.00
	Irrigation		$ 2,865.00		$ 4,000.00
	Mulch		$ 4,740.00		$ 5,000.00
	OG Pest/Disease Controls		$ 1,590.00		$ 2,000.00
Utilities	Electric		$ 3,325.00		$ 3,500.00
	Propane		$ 1,640.00		$ 2,500.00
Loan	Repayment of Capital Loan		$ 20,000.00		$ 15,000.00
	Total Expenses		$ 209,815.00		$ 262,885.00
	Projected Income				
	CSA Share Price	#of			
	$780	175	$ 136,500.00	210	$ 163,800.00
	Headhouse Farmer's Market		$ 73,240.00		$ 75,240.00
	Ottsville Farmer's Market				$ 10,000.00
	Wholesale		$ 9,335.00		$ 16,000.00
	Cookbooks / Local Food		$ 840.00		$ 1,600.00
	Work commitment		$ 1,040.00		$ 600.00
	CD's Interest		$ 1,375.00		$ 500.00
	Total Income		$ 222,330.00		$ 267,740.00
	Total Profit		$ 12,515.00		$ 4,855.00
	Profit per Acre		$ 568.86		$ 220.68

Profit + Cost of Land/Housing	$ 32,315.00	$ 25,885.00
Profit + Cost of Land/Housing per Acre		
	$ 1,468.86	$ 1,176.59

Sources: [redacted]

Table 2: [redacted]

Key Assumptions

1. Sales Growth: 30% 2.Expense Growth: 15%

3.Mixed model (CSA, Restaurant, On-Site Market, and Farmers' Markets)

4.No House on site

Year	1	2	3	4	5
Acres in Veg. Production	3	4	5	7	10
Acres in Fruit Production			3	5	10
Total Acres in Production	3	4	8	13	20
Sales	$ 152,600.00	$ 198,380.00	$ 257,894.00	$ 335,262.20	$ 435,840.86
Gross Sales	$ 152,600.00	$ 198,380.00	$ 257,894.00	$ 335,262.20	$ 435,840.86
Staff	$ 32,500.00	$ 37,375.00	$ 42,981.25	$ 49,428.44	$ 56,842.70
Total Production Wages	$ 32,500.00	$ 37,375.00	$ 42,981.25	$ 49,428.44	$ 56,842.70
Seed and Plants	$ 3,600.00	$ 4,140.00	$ 4,761.00	$ 5,475.15	$ 6,296.42
Fertilizer and Weed Treatments	$ 3,600.00	$ 4,140.00	$ 4,761.00	$ 5,475.15	$ 6,296.42
Misc	$ 600.00	$ 690.00	$ 793.50	$ 912.53	$ 1,049.40
Total Production Material	$ 7,800.00	$ 8,970.00	$ 10,315.50	$ 11,862.83	$ 13,642.25
Electric	$ 12,000.00	$ 13,800.00	$ 15,870.00	$ 18,250.50	$ 20,988.08
Fees & Licences	$ 380.00	$ 437.00	$ 502.55	$ 577.93	$ 664.62
Fuel - Heating	$ 12,000.00	$ 13,800.00	$ 15,870.00	$ 18,250.50	$ 20,988.08
Fuel - Vehicles	$ 36,000.00	$ 41,400.00	$ 47,610.00	$ 54,751.50	$ 62,964.23
Insurance - Workers' Comp.	$ 1,950.00	$ 2,242.50	$ 2,578.88	$ 2,965.71	$ 3,410.56
Employee Benefits	$ 4,875.00	$ 5,606.25	$ 6,447.19	$ 7,414.27	$ 8,526.41
Payroll Taxes - Prodn Wages	$ 2,600.00	$ 2,990.00	$ 3,438.50	$ 3,954.28	$ 4,547.42
Pest Control	$ 600.00	$ 690.00	$ 793.50	$ 912.53	$ 1,049.40
Trash Removal	$ 600.00	$ 690.00	$ 793.50	$ 912.53	$ 1,049.40
Telephone & Comm.	$ 1,800.00	$ 2,070.00	$ 2,380.50	$ 2,737.58	$ 3,148.21
Water & Sewer	$ 2,400.00	$ 2,760.00	$ 3,174.00	$ 3,650.10	$ 4,197.62

Repair & Maint.	$ 3,600.00	$ 4,140.00	$ 4,761.00	$ 5,475.15	$ 6,296.42
Marketing - Ads., etc.	$ 6,000.00	$ 6,900.00	$ 7,935.00	$ 9,125.25	$ 10,494.04
Composting Amendments	$ 900.00	$ 1,035.00	$ 1,190.25	$ 1,368.79	$ 1,574.11
Other	$ 1,200.00	$ 1,380.00	$ 1,587.00	$ 1,825.05	$ 2,098.81
Total Other Prodn Expenses	$ 86,905.00	$ 99,940.75	$ 114,931.86	$ 132,171.64	$ 151,997.39
Total Cost of Goods Sold	$ 127,205.00	$ 146,285.75	$ 168,228.61	$ 193,462.90	$ 222,482.34
Administrative Employees	$ 52,390.00	$ 60,248.50	$ 69,285.78	$ 79,678.64	$ 91,630.44
Total G&A Wages	$ 52,390.00	$ 60,248.50	$ 69,285.78	$ 79,678.64	$ 91,630.44
Payroll Tax - Others	$ 4,191.00	$ 4,819.65	$ 5,542.60	$ 6,373.99	$ 7,330.09
Worker's Comp - Others	$ 524.00	$ 602.60	$ 692.99	$ 796.94	$ 916.48
Employee Benefits - Other	$ 7,335.00	$ 8,435.25	$ 9,700.54	$ 11,155.62	$ 12,828.96
Insurance - General Liability	$ 759.00	$ 872.85	$ 1,003.78	$ 1,154.34	$ 1,327.50
Insurance - Property/Equip	$ 1,875.00	$ 2,156.25	$ 2,479.69	$ 2,851.64	$ 3,279.39
Interest on Debt	$ 13,822.00	$ 13,538.00	$ 13,173.00	$ 12,783.00	$ 12,365.00
Depreciation	$ 17,450.00	$ 17,450.00	$ 20,450.00	$ 20,450.00	$ 20,450.00
Accounting	$ 1,451.00	$ 1,668.65	$ 1,918.95	$ 2,206.79	$ 2,537.81
Bank Charges	$ 242.00	$ 278.30	$ 320.05	$ 368.05	$ 423.26
Computer Expense	$ 975.00	$ 1,121.25	$ 1,289.44	$ 1,482.85	$ 1,705.28
Legal Expenses	$ 242.00	$ 278.30	$ 320.05	$ 368.05	$ 423.26
Office Expense	$ 240.00	$ 276.00	$ 317.40	$ 365.01	$ 419.76
Other G&A	$ 2,550.00	$ 2,932.50	$ 3,372.38	$ 3,878.23	$ 4,459.97
Total G&A - Other than Waves	$ 51,656.00	$ 54,429.60	$ 60,580.84	$ 64,234.52	$ 68,466.74
Total G&A	$ 104,046.00	$ 114,678.10	$ 129,866.62	$ 143,913.16	$ 160,097.18
Total Expense	$ 231,251.00	$ 260,963.85	$ 298,095.23	$ 337,376.06	$ 382,579.52
Total Profit	**$ (78,651.00)**	**$ (62,583.85)**	**$ (40,201.23)**	**$ (2,113.86)**	**$ 53,261.34**
Profit per Acre	$ (26,217.00)	$ (15,452.80)	$ (4,747.71)	$ (165.39)	$ 2,705.75

Table3: Problems with purchasing equity in land

Assumptions (per acre):	Cost of land	$ 95,000.00
	Profit = [redacted]	
	[redacted]	
	Term	
	(years)	30
	Interest	6%

Year	1	2	3	4	5
Profit	$ (26,217.00)	$ (15,452.80)	$ (4,747.71)	$ 201.74	$ 1,463.21
Cost of land equity	$ 6,834.88	$ 6,834.88	$ 6,834.88	$ 6,834.88	$ 6,834.88
Balance	$ (33,051.88)	$ (22,287.68)	$ (11,582.59)	$ (6,633.14)	$ (5,371.66)
Profit + Cost of Land/Housing					
	$ (78,651.00)	$ (62,583.85)	$ (40,201.23)	$ 15,100.57	$ 39,573.17
Profit + Cost of Land/Housing per Acre					
	$ (26,217.00)	$ (15,452.80)	$ (4,747.71)	$ 651.74	$ 1,941.17

2. Land value

Methodology for cost of land:

Searched Century 21 website for land/lots available in Montgomery, Bucks, Delaware and Chester Counties. Recorded each listing by price and number of acres. Trimmed the sample to plots of four acres or more based upon interview with [redacted]. Ran a regression analysis to determine predictability of price given the total number of acres, and the predictability was over 72%. Developed descriptive statistics, and determined an average cost per acre of around **$45,200**.

Table 1: Land value

Price	Acres	Price/Acre	Price	Acres	Price/Acre
$100,000.00	0.35	$285,714.29	$184,500.00	3.70	$49,864.86
$40,000.00	0.35	$114,285.71	$159,900.00	3.97	$40,277.08
$75,000.00	0.5	$150,000.00	$175,000.00	4.09	$42,787.29
$135,000.00	0.55	$245,454.55	$169,900.00	4.18	$40,645.93
$175,000.00	0.57	$307,017.54	$149,900.00	4.30	$34,860.47
$200,000.00	0.80	$250,000.00	$300,000.00	4.77	$62,893.08
$335,000.00	1.00	$335,000.00	$400,000.00	5.00	$80,000.00
$335,000.00	1.00	$335,000.00	$266,000.00	5.00	$53,200.00
$149,900.00	1.00	$149,900.00	$1,290,000.00	6.00	$215,000.00
$72,900.00	1.20	$60,750.00	$309,900.00	6.20	$49,983.87
$194,900.00	1.40	$139,214.29	$260,000.00	6.60	$39,393.94
$370,000.00	1.80	$205,555.56	$199,000.00	6.90	$28,840.58
$835,000.00	2.00	$417,500.00	$1,725,000.00	7.50	$230,000.00
$249,900.00	2.00	$124,950.00	$189,900.00	7.70	$24,662.34
$180,000.00	2.00	$90,000.00	$140,000.00	8.70	$16,091.95
$169,900.00	2.00	$84,950.00	$250,000.00	9.70	$25,773.20
$178,500.00	2.20	$81,136.36	$625,000.00	10.00	$62,500.00
$199,000.00	2.25	$88,444.44	$235,950.00	12.00	$19,662.50
$150,000.00	2.44	$61,475.41	$650,000.00	12.50	$52,000.00
$79,900.00	2.50	$31,960.00	$392,000.00	15.76	$24,868.36
$150,000.00	2.70	$55,555.56	$575,000.00	16.00	$35,937.50
$135,000.00	2.70	$50,000.00	$199,900.00	17.00	$11,758.82
$634,900.00	3.00	$211,633.33	$585,000.00	20.50	$28,536.59
$235,000.00	3.00	$78,333.33	$399,900.00	25.40	$15,744.09
$200,000.00	3.14	$63,694.27	$775,000.00	33.00	$23,484.85
$380,000.00	3.15	$120,634.92	$790,000.00	34.00	$23,235.29
$134,900.00	3.50	$38,542.86	$989,000.00	38.00	$26,026.32
$625,000.00	58.78	$10,632.87	$1,100,000.00	42.20	$26,066.35
$2,200,000.00	64.00	$34,375.00	$925,000.00	50.00	$18,500.00
$2,100,000.00	89.00	$23,595.51	$1,250,000.00	58.00	$21,551.72

Source: Century 21 Price of Vacant Land Being Sold (Montgomery, Bucks, Delaware, Chester)

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