

*Sowing the Seeds For Farm-Based Education &  
Agriculture: Action Research with Pitney  
Meadows Community Farm*



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## Abstract

Farm-based education (FBE) is a means of connecting people back to their immediate environment, community, and agricultural practices on which we all depend. In the United States, there are over two thousand farm-based education centers offering hands-on, place-based educational programming that help give students context for what topics are taught in the classroom. Pitney Meadows Community Farm, Inc. (PMCF) is a new agricultural non-profit located in Saratoga Springs, New York planning to bring farm-based educational programs to the greater Saratoga County area. Acting as consultants for PMCF, we conducted ten semi-structured interviews with farm-based education centers in the Northeast in order to assess best industry practices, identify potential challenges, and compile a list of recommendations for PMCF. We found that it would be in PMCF's best interest to (1) hire Americorps workers and interns, (2) get on the public transportation route, (3) customize curriculum to meet teacher needs, (4) form partnerships within the community and identify community members who could host a workshop at the farm, (5) provide professional development opportunities for educators, (6) have a membership program, (7) have opportunities for student advancement, (8) advertise via social media, (9) get involved in the local school system and (10) start the operation on a small scale and grow from there. Finally, we gauged interest of Saratoga County teachers in partnering with PMCF to implement FBE through an online survey. We found that elementary teachers in the county were overwhelmingly enthusiastic about visiting the farm and identified the following as potential FBE field trip topics: Plant Life Cycles, Nutrition, and Sustainable Agriculture.

## **Introduction**

In a time when we must face the impacts of a growing global population, the disconnect between consumers and where their food comes from, and the consequences of global climate change, it is of utmost importance to connect communities back to the land and resources on which we all depend. Farm-based education (FBE) is a means of addressing these issues from the bottom-up. FBE is defined by the Farm-Based Education Network as:

A form of experiential, interdisciplinary education that connects people to the environment, their community, and the role of agriculture in our lives... that promotes land stewardship, the value of meaningful work, and supports the local food systems that sustain us (2014).

The farm itself is an authentic learning environment that combines “real-world surroundings, actors, and activities with academic subjects” thus allowing school subjects to be studied from a more holistic perspective than they would be in a classroom setting (Smeds et al, 2015). Authentic learning involves connecting academic content taught in the classroom with real-world applications and problems to prepare students to address issues outside the classroom and in their own lives later in life (The Glossary of Education Reform, 2013). Students learning in authentic environments have shown an increase in long-term retention of academic content and enhanced understanding (Smeds et al, 2015). For example, walking trails could host ecology lessons and stewardship projects. Vermicomposting could give students the opportunity to watch and experience the decomposition processes. The potential for authentic learning in a localized setting will prove to help the community contextualize new ideas and theories while fostering their identity in the community. Pitney Meadows Community Farm, formerly known as Pitney Farm, is a new agricultural non-profit looking to become a farm-based education center.

Pitney Farm is a 166-acre plot of land located on West Avenue in Saratoga Springs, New York that will undergo renovations to become the city's new farm-based education center and agricultural hub. The farm itself is divided by railroad tracks. To the east of the tracks are 131 acres that include 90 acres of farmland, historic farm buildings, trees and wetlands from Geyser Brook, which form the farm's western boundary (Post, 2016). To the west of the tracks are 37 wooded acres with white pines. The farm has been in the Pitney family since 1862, the farmland has been used to grow vegetables for the former Pitney Hotel on Grand Avenue, the Pitney's Meadow Dairy Farm and as a horse boarding operation. Most recently, Thomas Poultry leased the land to grow feed corn (Post, 2016).

About five years ago, Michael Kilpatrick, a farmer from Middle Granville, New York, approached the Pitney family about turning the land into a community farm and agricultural hub. He brought the idea to Sandy Arnold and her husband, Paul, who have been operating Pleasant Valley Farm in Argyle, New York for the past 28 years. The three upstate New York farmers partnered to form Pitney Meadows Community Farm, Inc. Kilpatrick states, "We want to be a place where people and farmers can connect and learn about agriculture and eat good food. Saratoga is such a cool place to do this. It's good property, a good location and it's a very environmentally-friendly city" (Post 2016). The vision for the community farm stretches beyond the community learning to grow and cultivate their own food. The plan also includes a regional year-round agricultural hub, trails for walking, a children's garden, greenhouses, a farmer apprenticeship program that couples experience in the field with classroom learning and gives graduates a small plot to farm on their own, workshops for the community, and a summer camp program (Figure 1).



space purposes” (Pollard, 2016). This is the greatest amount of money the city has ever given to any one Open Space project (Forbush, 2016). Ed Kinowski, chairman of the Board of Supervisors believes that PMCF’s acquisition of the Pitney Farm and its plan to develop the property and a major agritourism attraction while developing a new generation of sustainability-focused agricultural entrepreneurs speak to real economic needs we have today” (Forbush 2016).

The purpose of this research is to better understand the process of developing and implementing farm-based educational programs and pinpoint the best practices of the business, as well as the greatest challenges many educational farms face in order to offer recommendations for PMCF. Additionally, we will gauge teacher interest in Saratoga County for partnering with PMCF for educational field trips and outreach. A secondary purpose of this Action Research is to provide a deliverable for our stakeholder. We will work to gather FBE curricular materials and ideas from the farms we conduct interviews with and assemble them in a binder for PMCF in hopes that they inform summer camp program curriculum. These curriculum materials will incorporate place-based education and authentic learning, as well as form partnerships with community stakeholders, such as schools and farmers in the area. The recommendations will be informed by our archival research and semi-structured interviews with existing farm-based education centers all over the country including Vermont’s Shelburne Farms and New York’s Stone Barns. From this research, we will gather information on what has already been implemented elsewhere and assess the success, pitfalls, challenges and profitability of farm educational programs. We designed three main research questions in order to gather data effectively: (1) What are the key components of successful farm-based education programs and to what extent can these programs and funding sources be replicated at Pitney Farm? (2) To what extent is it necessary to align FBE programming

with state mandated educational standards? (3) How interested are Saratoga County teachers in farm-based curriculum?

### **Literature Review**

Below discusses the pre-existing literature on farm-based education throughout the United States to contextualize the research being done for Pitney Meadows Community Farm. The analysis begins with a discussion on civic agriculture and its historical presence in the United States. This broadens into a larger discussion on the history of the agricultural sector of the United States and into a critique on today's food system. The discussion then becomes an analysis of current successful educational farm programs through a series of case studies of farm-based educational centers through the United States. These case studies will inform the research of the project.

Community farms are powerful tools (Cobb, 2011). They create an opportunity to learn hands on skills about ecosystems, animals, environmental health, soil and water while also potentially influencing local and national policies (Cobb, 2011). Pitney Meadows Community Farm has the potential to be this influential presence in Saratoga Springs, New York. The mission of Pitney Farms falls directly into the field of "civic agriculture." Civic Agriculture is defined as a rebirth of locally based agriculture and food production not monitored by federal or state agencies (Lyson, 2004). This movement encapsulates a growing community of farming enterprises that are designed to fit the needs of local growers, consumers, rural economies and communities (DeLind, 2002). It acts as an alternative to the global commodity driven food systems currently in place through a universal re-integrating of people in place. It has the potential to promote citizenship and increase environmentalism in rural and urban areas through changed economic models as well as creating community ties and a physical connection and engagement with the land (DeLind,



2002). Civic agriculture is inextricably linked to a community's social and economic development through the various tools of implementation: farmer's markets, community gardens, community-supported agriculture (CSA) and educational programs (Lyson, 2004). In practice, civic agriculture creates a way for a community to produce and process food locally without being a threat to the larger agricultural economy. By bridging the gap between production and consumption, civic based agriculture answers the demand for fresh, safe, locally sourced food while strengthening community identity and creating jobs and innovation (Lyson, 2004).

The agricultural sector of the United States has historically been guided by an economic paradigm grounded in neoclassical and market based economics. With this capitalistic view, agriculture has been transformed into a purely market based operation. The economic productivity of agriculture is based on the balancing of land, labor and capital. Agricultural processes have been streamlined to increase productivity and profit. Labor is replaced by machinery making all workers interchangeable and each farm produces fewer units to capture economies of scale. The top ten multinational corporations account for over 60 percent of retail purchases in the US (Lyson, 2004). This industrialization of agriculture combined with a cheap energy policy has created an economy dependent on imports and exports. Food is easily and cheaply shipped across the globe, leaving America completely dependent on exports. This creates an environment where many of the largest cities in the world don't have access to local or fresh food (Lyson, 2004).

These financial and agricultural practices of recent decades have made it nearly impossible to have independent, small, successful farms. Modern agricultural practices not only simplify and monopolize the economy for a few large companies but contribute greatly to environmental degradation (Groh & McFadden, 2000). The industrialized mindset has promoted the idea that capital trumps the needs of the people (Donahue; Jackson, 1999). As farmers and farms become

more distant from the consumer, the average person loses knowledge of how to live a healthy lifestyle. Urban and suburban lifestyles do not sufficiently “give the soul nourishing experience that men and women require- especially children and teenagers-[that] must have the opportunity to engage actively and creatively with life-filled farm organisms” (Groh & McFadden, 2000, 10). It is no longer the question of *if* we need new farms, rather it has come to the point of discussing *why* a new farm system is a necessity and how society will achieve these goals. One obvious reason for a new way of farming is simply for the improved health of humans. Many people do not understand or do not want to understand the full impact of pesticides and additives on the body. Furthermore, food that is packaged and shipped for miles creates altered foods that are ultimately not as healthy for human consumption. But, when a community has access to local food they can gain healthy nutrition from a non-profit driven source (Groh & McFadden, 2000).

Educational farms are a multi-functional solution to the food crisis in the United States: they have the potential to help the landscape, the economy and the people. The principles of farming can be utilized to teach young people important lessons within the context of modern times. By interacting with and growing organisms in a farm setting, children can contextualize the waste-driven society of the United States and understand the limitations and capacity of nature. Working on a farm creates tangible demands for children-tasks that cannot be ignored because they are crucial to the life-force of the organism. Weed the plants, feed the chickens- these are all necessary and vital jobs that cannot be excused away (Groh & McFadden, 2000). Working on a farm produces an understanding of generational learning and growth. For example, planting a tree that takes multiple years to grow contrasts the instant gratification culture of today. Children can gain a deeper appreciation for many aspects of life and develop necessary patience. Along with this, children can learn the technical skills necessary to run a successful farm and appreciate the

reward that comes with performing services for others, rather than material goods. Farms need to be transformed into integral parts of urban and rural society and civic agriculture acts as the framework to guide the new farm revolution (Groh & McFadden, 2000). Educational farms have the potential to move farmers away from the singular idea of agricultural production driven primarily by economic interests and into the sociological perspective of the agro-industrial paradigm as discussed by Canavari et al. (2011). Overall, civic agriculture lays the groundwork for a transformation of the agricultural systems in place in the United States and globally. A more socially and environmentally assimilated food system can strengthen the bonds between farmers and consumers as well as foster local economic growth and maintain product diversity (Lyson, 2004).

In recent years there has been a push for a new standard of curriculum for K-12, in order to better prepare students for the challenges of the upcoming generations (Stone & Barlow, 2009). David Orr (1991) argues in his essay “What is Education For” that education’s purpose is to teach students how they, like any other organism, are integral to the natural world. Orr argues that education should emphasize self-understanding and personal mastery. It should help students recognize the responsibility to use knowledge responsibly in the world and to understand the effects of the application of knowledge on people and communities. Students should act as role models of honesty, carefulness, and thoughtfulness and recognize that the process of education is as important as its contents (1991). Complexity of knowledge should stem from an equal capability of heart, mind, hands and spirit. Therefore, when constructing environmental or farm-based education, it is crucial to remain aware of the multidisciplinary nature of ecological learning. Ecosystems connect the living and nonliving world; therefore the study and practice of ecology spans from geology and biology to political science and economics (Stone & Barlow, 2009).

Creating sustainable communities will entail work at all educational levels over long periods of time. Fostering a deep rooted sense of empathy and promoting self-efficacy is key to creating successful educational models. Education should present different perspectives, promote a commitment to equality and justice and foster skills in community building and governing (Stone & Barlow, 2009).

### *Case Studies*

Various programs across the United States are working towards creating this model of education. The Sustainable School Project (SSP) in Burlington, Vermont is connected to Shelburne Farms, a 1,400 acre working farm. Shelburne Farms' dedication to environmental education in schools is seen through their creation of the Sustainable School Project. This project showcases the successes that can come through combining place-based learning, school wide curriculum collaboration, partnerships with community organizations and hands-on civic engagement (Stone & Barlow, 2009). Shelburne Farms was active in statewide educational goals from the beginning of their life as an educational farm. The farm designed professional development workshops to benefit educators in the area as well as writing the majority of the "Vermont Guide to Education for Sustainability" (Stone & Barlow, 2009). This guide is focused on "improving the quality of life for all-socially, economically, and environmentally-now and for future generations" (Stone & Barlow, 2009, 6). The Shelburne Farms principles stem from three main ideas: 1) understanding connections, 2) connecting to place and 3) making a difference. By understanding connections, learning gains a new meaning and complexity when students can witness firsthand the bonds of human and natural systems within their own communities. This leads into a connection to place which emphasizes the fact that students have to be informed about their own community before they can translate their knowledge to a global scale. By creating this knowledge, students are more

motivated to become stewards of the world. Finally, these facets both translate into the goal of making a difference and causing an impact on the local and global environment. In order for students to feel motivated and engaged in the world today they have to know that they have the power to make a difference. Therefore, sustainability education depends on projects that have meaningful impacts and are age appropriate. Projects must be timely, difficult and reinforce ideas of academic integrity (Stone & Barlow, 2009).

When beginning their work, Shelburne Farms consultants and teachers identified nine big ideas of sustainability as a framework for curriculum integration: diversity, interdependence, cycles, limits, fairness and equity, connecting to place, ability to make a difference, long-term effects, and community. To create initial programs, teachers began by looking at resources on their own property. A keystone example of curriculum building is found in the Healthy Neighborhoods/Healthy Kids program, a fourth and fifth-grade project within the SSP framework (Stone & Barlow, 2009). This curriculum converges place-based education, community connections and civic engagement. The program involves students brainstorming quality of life indicators in a neighborhood. These lists include natural factors such as the amount of green spaces with plants and flowers, habitats for animals, amount of trees in an area and accessibility to healthy food. The students also listed various other factors as quality of life indicators including murals instead of graffiti, safe places to play, and spots for neighbors to meet. Students became engaged with the community and noticed facets about the community they never acknowledged or deemed important before. This attention to detail and promotion of self-efficacy paid off. After one particular school, Lawrence Barnes Elementary, joined the Sustainable Schools Project, reading scores rose 22 percent and math scores rose 18 percent (Stone & Barlow 2009). Parents and students became civically involved and began to take pride in their community and utilize the

school as a resource for community growth. Barnes soon became the “cool school” to go to and was chosen to become the nation’s first K-12 magnet school with a sustainability theme. Shelburne Farms’ dedication to sustainable education acts as a beacon in the evaluation of successful programs, demonstrating community wide triumphs as well as individual educational accomplishments (Stone & Barlow, 2009).

A study by Amy Powers (2004) evaluates the effectiveness of four place- based education curricula, including two curricula designed and implemented through Shelburne Farms. The four programs include: The Sustainable Schools Project (as discussed above), Forest for Every classroom (FEC) (implemented through Shelburne Farms), Community Mapping Program (CMP), and CO-SEED. CO-SEED is similar to SSP in that they are both whole school improvement models. The remaining two programs are professional development programs that focus their attentions on teacher training and professional development. The purpose of Powers’ study and evaluations were to gain information regarding effective teaching tools and methods, and how to best replicate the successful aspects in other areas. Through semi-structured interviews and focus groups as well as direct observation, Powers observed the trends that make successful place-based curriculums. The observed programs were eager to work together to increase their shared knowledge of different curricula and programs (Powers, 2004).

Through her research, Powers determines four main facets that create successful place based curricula. First, she notes the importance of community partners that provide educators with diverse opinions. These partnerships create a large array of resources that can be obtained through different stakeholders. Working with community partners also increases the likelihood of students working on meaningful projects within the community (Powers, 2004). Another crucially important facet of place based learning is pre-service and in-service teacher training. Each of the

four programs employs highly trained teachers and staff members. Teachers and staff must have the ability and flexibility to manage, facilitate and teach subjects through various different lenses. This, as well as a practical knowledge of geographic mapping systems, gardening, naturalist skills, forestry knowledge and other computer systems proved invaluable (Powers, 2004).

Two of the programs also installed infrastructure to maintain their presence in the schools year round, a third crucial strength for place-based education, as discussed by Powers. These two programs have staff based in the schools to promote place-based education and provide resources for the educators in the system. Another program offers individual meetings with teams of teachers four times a year for several days at a time and continues to be a resource for follow up support after the meetings. The last program offers intensive training for teachers which continues through the year with ongoing professional development. Along with this model of sustaining the programs, the summer initiatives of these four programs were also viewed as crucial to their success. Summer training programs allowed teachers the chance to invest their time in creating curricula in an environment where they could be tested out and critiqued by other teachers. Collaborative training is crucial to increase teacher confidence and creates connections within the field. Many teachers involved in the place based educational curricula noted how the programs showcase the interlinking of all subjects in everyday life (Powers, 2004).

Another program dedicated to farm-based and place based education is Community Groundworks, a community garden based out of Madison, Wisconsin. Community Groundworks is a “quilt” of community gardens built to include housing for mixed incomes and productive organic farms on a restored prairie and woodland area. In 1995, the state was vying to transform this parcel of land into a residential area when a small group of educators and farmers called for a conservation easement to turn the land into an organic, community-centered garden. The small

program has transformed into both a large scale gardening program as well as a green housing development for a primarily low income population. The gardens are entirely volunteer run with around 300 garden plots, some which are reserved for cohousing homeowners (Cobb, 2011).

A successful facet of the gardens is the Kids' Gardens program. This program is made up of 10 plots around the garden and allows children to learn about where their food comes from and how to cook it, while expressing themselves artistically and developing leadership skills (Cobb, 2011). With an operational annual budget of \$100,000 the programs still heavily depend on outside assistance and find that increased collaboration with community stakeholders is crucial to their success. Their need for community involvement is met with enthusiasm through the likes of the Oakhill Correctional Institute, which donates seedlings annually, and the local hospital's anti-obesity campaign which has helped develop a program to help children become more fit in the summer through gardening activities. The children involved in the program learn the intricacies of gardening and all the practical skills necessary to create successful gardens. Overall, Community Groundworks has actively engaged with the community through their children's programs and their implementation of a CSA. Community gardens are not successful when they don't fulfill a need of the community and when they take away responsibility from the community; this example showcases the success that accompanies proper implementation (Cobb, 2011).

The Appalachian Sustainable Agriculture Project (ASAP) in Asheville, North Carolina created a community garden project called Growing Minds that was also successfully implemented. Growing Minds works to create programs that educate children about nutrition and diet by expanding their palates and understanding of food through tasting and cooking demonstrations (Cobb, 2011). They go into schools with their farm to school cooking program, understanding the importance of healthy food in school cafeterias (Cobb, 2011). They also host



school field trips on their property where they take children through the entire food process. Children see how crops are grown and then witness their transformation into healthy, fresh and delicious food. The curators of this program heighten the importance of pre-service training for teachers, emphasizing that this is the only way to create successful farm to school programs. This program works to create an interdisciplinary approach to garden curricula and utilize student led ambition to fuel learning (Cobb, 2011).

The Jones Valley Urban Farm (JVUF) is another example of a successful community learning farm in Birmingham, Alabama. In 2001, the founders discovered a 3-acre vacant lot which they knew they wanted to transform into an urban teaching farm for both children and adults. Their mission is to explore ways to help create greater community awareness of fresh foods (Cobb, 2011). They work closely with the Alabama School of Fine Arts (AFSA), a public school for grades 7-12 in Birmingham that focuses on developing outdoor skills. Students participated in a summer course offered by the garden that soon became so rigorous it translated into a fall semester course. In this class, students use the garden to study botany, water management, entomology, microbiology and weather and air quality. They also maintain garden beds, select crops, amend soil and harvest vegetables for use in the school cafeteria (Cobb, 2011). This class then added a summer internship. Now students can take a class through the garden during the school year and continue cultivating their passion through a summer internship. In addition to school programs, JVUF hosts adult gardening classes that teach adults the basics of organic gardening techniques. They host tours of the garden, and a one week “food camp” for children every summer where children learn how their food evolves from seed to plate. They also provide workshops for teachers and community members of all ages: growing lessons in the field, nutrition lessons in the classroom, and culinary lessons in the kitchen (Cobb, 2011).

Overall civic and community based agriculture has swept across the nation and has the potential to create extensive changes within the current food system and improve the overall health of communities across the nation when implemented correctly. Educational and community farms are most successful when they meet a need of the community and involve all community members in the process. Community farms are meant to create enhanced collaboration of all ages in a community as well as inform children and adults of the importance of sustainable and small scale farming. They act as interdisciplinary educational tools as well as a platform for community camaraderie and growth (Cobb, 2011; Powers, 2011; Stone & Barlow, 2009).

## **Methods**

We framed our project through a lens of action research in order to effectively triangulate the information we needed to conclusively answer our research questions. We triangulated our analysis through archival research, semi-structured interviews, site visits and an online survey. Our primary mode of data collection was conducted through semi-structured interviews to gain insight into the current best practices of farm-based education centers that have designed and taught effective curriculum. Once we evaluated the best practices, we offered suggestions as to what techniques we believed to be the most effective and replicable at Pitney Meadows Community Farm. These techniques then became the basis for our overall research analysis of the farm-based education industry. Through our online survey we gauged the interest of local educators while discovering the best methods for which to address the most sought after topics.

### *Action Research*

“Action research is a collaborative approach to research that provides a means to systematic action in an effort to resolve social conditions, environmental problems, or improve delivery of services” (Creswell, 2003). The process of action research incorporates the ethic of

democratic and participatory research where researchers collaborate with those being studied in order to design the broader research questions. Action research challenges traditional social science by moving beyond reflective knowledge, to an active moment to moment real time theorizing, data collection and inquiry. Essential aspects of action research include direct sharing of results with our stakeholder, formal presentations to the stakeholder as well as providing concrete recommendations for improvement and framing of the Pitney Meadows Community Farm services and curriculum. Our action research was not only focused on gaining a better understanding of the broader aspects of environmental education on farms but also providing a means of personalization for Pitney Meadows Community Farm curriculum and operations.

### *Population and Setting*

Pitney Meadows Community Farm was a newly formed non profit organization that desired to create a local learning haven for students ranging from elementary through high school. Pitney Meadows Community Farm was officially incorporated in 2011 however; when we initially approached the organization they merely had a desire for a curriculum but did not have the means or plan for how to craft one. After a few meetings with our stakeholder we discovered that the most effective way to conduct our research was through the framework of action research. This technique would allow us to conduct research while simultaneously having an open dialogue with our stakeholder concerning anything from their own preferences to personal philosophy.

### *Instrumentation and Data Analysis*

The first step in our interview process was to compile a list of farm-based education centers in the Northeast. Semi-structured interviews were the most effective way to gather our data through the framework of action research. Semi-structured interviews offered an opportunity to have open dialogue with interviewees in addition to rigid question and answer sessions. In order to effectively

conduct interview sessions we prepared twenty questions ahead of time as well as an informal outline of archival information we could gather online to fill in any blanks (see appendix b).

We specifically sought out farms that were well known as leaders in their field of environmental and agricultural education. The list we compiled consisted of the following farms and organizations: Shelburne Farms in Vermont, Radix Ecological Sustainability Center in Albany New York, Pineland Farm in New Gloucester Maine, Bread and Butter Farm, New Pond Farm in Redding Connecticut, Morris Farm Trust in Maine, Stone Barns in New York, Ambler Farm in Connecticut, Lakeside School at Black Kettle Farm in New York and City Sprouts in Boston Massachusetts. Once the list above was fully compiled we sought out interviews with representatives or staff from each program. Through email and phone calls we contacted each of the organizations with the desire to create appointments for either an in person or phone interview. We believed that the more organizations we connected with would in turn give us a greater scope of the farm-based education realm and the best practices. We were looking for common threads throughout each program that would act as a foundation for our own analysis for Pitney Meadows Community Farm.

We created an online survey using Qualtrics, an online research platform, that was sent to Saratoga County teachers in order to gauge overall interest of local educators in farm-based education. Our survey was nine questions long and included likert scale as well as free form boxes for participants to openly respond to our survey questions. Our survey was designed to gauge overall interest of Saratoga County teachers in potential experiential education field trips at Pitney Meadows Community Farm (see appendix a).

## **Findings**

Throughout our research a series of common threads materialized, defining what makes a successful farm-based education program. We analyzed each farm through a series of nine criteria in order to determine what the most effective aspects of programs are in relation to other farms. These criteria address the qualitative aspects of farm-based education that make environmental education successful in terms of both the farm's relationship within the community and their students and campers. These include: (1) Community engagement, (2) Strength and commitment to vision when implementing new programs (Cultural Identity), (3) Retention rate, (4) Professional development, (5) Opportunity for school involvement, and (6) Variety of advertising methods. The other three criteria are quantitative: (7) Size of budget, (8) Number of full-time educators, (9) Membership programs. We compared these facets of operation below in order to create a more holistic picture of the various missions and operational complexities of each farm. By evaluating each of the farms through these lenses, and quantifying the data we amassed we are able to form recommendations for the educational programming at Pitney Meadows Community Farms. We then surveyed a total of 62 teachers in order to gauge their interest in participating with educational programming at Pitney Meadow.

*Table 1: Semi-structured interviews with regional farms*

<b>Farm Name</b>	<b>Location</b>
Shelburne Farms	Shelburne, Vermont
Stone Barns	Tarrytown, New York
Pineland Farms	New Gloucester, Maine
Ambler Farm	Wilton, Connecticut

New Pond Farm	Redding, Connecticut
City Sprouts	Cambridge, Massachusetts
Lakeside School at Black Kettle Farm	Essex, New York
Bread and Butter Farm	Shelburne, Vermont
Morris Farm Trust	Wiscasset, Maine
Radix	Albany, New York

### *Qualitative criteria and defining characteristics of farm respondents*

#### **Ambler Farm (Wilton, Connecticut)**

Ambler Farm is an educational farm located in Wilton, Connecticut with a mission to connect the area's agrarian history with modern life, through hands-on educational activities, sustainable farming, land stewardship, historic preservation, animal husbandry, and community engagement. They facilitate summer and year-round programming with families and children within the Wilton School District. When considering the six qualitative criteria that make a successful farm program, Ambler Farm sufficiently fulfills all of the categories.

Community Engagement: Ambler Farm administers multiple programs that allow it to remain engaged and present in the community for people of all ages. One program that particularly stands out is the apprenticeship program. This 10-year-old program has grown from an enrollment of 12, to 150 children. These are children that joined the program in 5th grade and as Kevin Meehan, Program Director stated, “These are the kids where if I get to a Saturday in April where I need help...I send out an email and I will have 25 kids to move compost” (personal

communication, 2017). Through his apprentice program, Meehan has developed a smart, capable and reliable set of workers and volunteers. The climactic moment of the apprenticeship program every year is the soup and salad night, an opportunity for the students to cook food for their friends and family who don't necessarily work on the farm. The kids work for a whole week preparing a giant meal for the community with fresh farm vegetables and then invite their parents, siblings and neighbors to join.

*Retention Rate:* The farm's apprentice program also highlights the high retention rate of Ambler Farms. A lesson to be learned from the example of Ambler Farms is the way they incentivize children to return to the farm through inspiring youth early, and continually supporting their growth as they continue through High School. The older kids, as they grow in the program become mentors and teachers to the younger children, creating feelings of self-efficacy and responsibility in the children (leaving their legacy). This gives the younger children an attainable goal and a further incentive to stay with the program long-term. They keep coming back year to year for the connection they feel with the land and the community. Meehan stated: "They joined the program because of the animals and because of the excitement of the gardens. They don't come back for that. They come back because they feel connected and they feel a part of it" (personal communication, 2017). Children are growing up on the farm and making friends and connections through the work that they do, and this keeps them connected to the farm and excited to return.

*Cultural Identity:* Ambler Farms has a strong identity in the community. Director Meehan also works as a teacher in the local school system and therefore has connected the farm with the Wilton Public School District. An example of a popular program hosted by Ambler Farms is their Winter maple sugaring event. Due to Meehan's connection with the school system in Wilton he has tree tapping programs with High Schools, elementary schools, pre-schools, and kindergartens.

These programs not only act as advertising for the farm's warmer month programs, but they create an opportunity for children and their parents to get involved, together. Ambler Farms is well known throughout their community due to the high enrollment in their programs and school involvement. Along with the public schools, Meehan taps the local private school and gives the maple syrup to the school's dining hall. The maple syruping program creates a signature farm product while simultaneously involving the schools and community. People know and recognize Ambler Farm's presence in the community, year round.

*School Involvement:* The maple syrup program also contributes to the fourth criteria, involvement with the schools. As mentioned above, Ambler Farms is run through the local school system. Meehan explicitly endorses involvement within the local schools stating that "Anytime you are developing programming and you are attaching yourselves to schools, you are giving yourselves legitimacy as a real educational place" (personal communication, 2017) Meehan stated that one of the greatest challenges to farm educational programming is finding a way into the school system and working around restrictive state standards and other mandatory criteria for schools.

*Professional Development:* When considering the growth of staff, Meehan always looks for people with passion and love for the work on the farm. He pays his educators \$25 an hour and stated that "the nature of nonprofits" is that people come and go. Therefore, there is not much opportunity for professional growth on the farm, amongst educators. When running summer programs Meehan does not look to hire one educator who can teach on every subject. He focuses on finding those teachers who have an expertise in one farm related subject and gives them free reign to teach that subject matter. He also has access to the trained teachers in the school system and often recruits his summer educators through this passionate pool of teachers. The training



process is more or less a learn as you go process. Ambler Farm capitalizes on their interaction with the school system and looks for passion and experience, but accepts the nature of the nonprofit attention cycle and cycles through its summer employees around every two years, always cultivating new talent and interest.

Advertising: Advertising methods at Ambler Farms are primarily through word of mouth and flyers through the schools. Friends will tell friends and flyers in backpacks are sent home to parents. These have proven to be extremely effective methods for Ambler Farms as their summer camps and apprenticeship programs often fill up extremely fast. Meehan attributes much of their enrollment success not to their advertising but to the quality of their programs: “Quality first, don’t cut corners on money for staff or whatever you do. My sense is quality programs sell more.” The quality of their programs along with the overall community interest has created a very successful environment for Ambler Farms.

### **Bread and Butter Farm (Shelburne, Vermont)**

Bread and Butter Farm is a 200-acre educational dairy farm in Shelburne, Vermont. Their model is a collaborative farm, combining dairy farming, a café, and education. With adult and children education, Bread and Butter Farm focuses on sticking to their mission when planning programming and events, and it has proved successful for them. Starting in 2009 education was always in the plan but not implemented until 2013, when the first Summer Camp began at Bread and Butter.

Community Engagement: Bread and Butter Farm is based on successful community engagement. The organization is fueled by people who love the land and love spending time on

the land in a community setting. They have multiple events during the year that demonstrate this as discussed by Bekah Gordon, Summer Camp Coordinator:

There were about four years of just farming and community engagement ranging from taking on local college student volunteers, weekly burger nights for anyone in the area to come and play, eat off the land, and be together, and then there have been our on-farm music classes for babies and their parents, so that was already happening. There was just so much previous love and momentum going on around the farm in the community. So when we began a camp, there was already interest in having people's kids spend more time here. (personal communication, 2017).

The farm has been consistently focused on community engagement from the start of their endeavor, citing it as the most important factor in enrollment of Summer Camps from weekly attendance of Friday night burger night.

Cultural Identity: Bread and Butter Farm is highly motivated to stick to their mission statement and overall intentions of the farm. When designing programs and Summer camps, the staff is highly focused on keeping their love and passion for farming as infectious as possible, emphasizing the work they do, as Gordon stated: “The farm's overall intention is in its very existence being the trigger of the people coming....and then zoomed in, the intention of camp being so driven by our deep heart and soul” (personal communication. 2017). The farm sticks to its mission and goals in every aspect from hiring passionate, creative staff to teach and work, or by just attracting those people interested in farming through their actions. When describing Bread and Butter Summer camps Gordon stated:

I could NEVER be on board to just create a babysitting type program whether it's summer camp or year-round programming. I'm not about that. We want and need this next

generation to know how to work, know how to be better humans, to know how to love one another and belong to community...to the land. THAT drives me and, in turn, camp staff to, ourselves, be someone greater for these kids and one another...and hold everyone to high standards of responsibility and love and care and respect (personal communication, 2017).

This passion and integrity creates Bread and Butter Farm's cultural identity within the context of Vermont and nationwide educational farm programs.

*Retention Rate:* The summer camp program is relatively new at Bread and Butter Farm. Children and parents are drawn to the camp for the land and the enthusiastic staff. An emerging program, as discussed by Henry Cammack, is the Leader in Training Program at the farm. This is a new program tried for the first time last year with one student who had "aged out of the program." It is in the initial stages of development but promises to be a very worthwhile program.

*School Involvement:* In terms of school involvement, Bread and Butter Farm is partnered with the Schoolhouse, a neighboring school to the farm. They come out twice a week and work for an hour or two. The Middle School is currently completing a series of independent projects, each group with their own focus. For example, Henry Cammack, the dairy farmer at the farm, is currently working with three students very interested in animal care. These three students are all working on harness training dairy calves as their individual project. On a higher education level, Bread and Butter Farm is also associated with the UVM Farmer Training Program, a six-month hands-on program for aspiring farmers and food-system advocates. Bread and Butter Farm is one of the partner farms in the region that works with the students to bring hands on experience to the farmer trainees. Cammack also mentioned one recent occasion when the farm, partnered with Shelburne Farms, facilitated an in-classroom visit with over three groups of 40 kids from public

school in central Vermont. Cammack noted the effect of this visit: “We have kids that come all the time and have a lot of ownership over the place, but seeing how amazed those kids that don’t get a lot of exposure, is really cool” (personal communication, 2017). Bread and Butter Farm hopes to conduct more school visits in the future and continue their partnership with the Schoolhouse.

*Professional Development:* Bread and Butter only hires seasonal camp educators (six or seven per season) and does not have a full-time educator on staff; they are currently looking to hire one. However, every worker on the farm is considered an educator alongside their other duties on the farm. Bekah Gordon described the educator training process:

“We all meet a TON and talk a TON...lots of communication and "training" by being together and observing one another teaching others. The programming here exists BECAUSE, again, of the people here. I started as a bread delivery girl, moved into veggie world and, my boss Corie knew I loved to teach and wanted a part of my job to include that, so she suggested I teach the Forest portion of Food Forest Farm. Then slowly, the camp idea emerged" (personal communication, 2017).

Bread and Butter is a community based farm surrounded by passionate and innovative people always working to create better and new programs.

*Advertising:* As seen with other farms, Bread and Butter does not do much advertising. The farm mostly relies on word of mouth, social media, and their website. This, along with the high quality of their programs draws people in.

### **CitySprouts (Cambridge, MA)**

CitySprouts is an urban-gardening program that partners with elementary and middle schools in the Greater Boston region to bring garden curriculum to students, teachers, and

communities. The CitySprouts program began in 2001 when a group of parents, a teacher and a school principal created a school garden program in two Cambridge, MA schools to connect children living in urban areas with the opportunity to explore their natural environment, and get to know their food system. In 2007, CitySprouts' Middle-School Program began serving students throughout the summer with an internship program, and in 2015, this was extended to an after school program with a focus on science, engineering, and growing food (CitySprouts, 2017).

Community Engagement: The nature of CitySprouts' programs, partnering with local schools to connect with students and support teachers in implementing garden curriculum, inherently leads to community involvement. CitySprouts garden educators facilitate hands-on learning opportunities in the garden to help bridge the gap between plate and lifecycle of food, introduce sustainable agriculture, and foster a love for the natural environment. They also provide support to each partner school throughout the school year, which includes meeting with teachers in grade-level staff meetings, as well as individually to support their garden-based extensions to science, literacy, and math curricula (CitySprouts 2017). Moreover, the Middle-School Program is tuition-free, making the summer program, after school clubs, and in-school electives accessible for all 175 youth it serves. The Middle-School Program has three focus areas, one of which specifically targets building community and autonomy (CitySprouts 2017). Maggie Notopolous, CitySprouts Middle-School Coordinator, stated: "At the very end of the program they [the students] do a showcase. They invite parents, teachers, community members to it and they present some project they've created to show what they've learned over all the term, and show off where their passions lie" (personal communication, 2017).

Cultural Identity: CitySprouts began at the grassroots level with parents, teachers, and other school officials trying to think of a way to connect children, who had little opportunity to

engage with the environment in such an urban setting, with their food systems, natural environment, and community. In an era of increasing diseases caused by poor diet, especially for children in under-resourced communities, the founders looked to school gardens as an effective means to set children on a path toward lifelong healthy food choices and hands-on experiences that will help them excel in math, reading, science, and writing skills (CitySprouts, 2017). CitySprouts enables urban youth to engage with their environment in a way that gives back to the larger community. Notopolous explained, “We focus mainly on food justice and being a part of their community, and understanding what that means by using food as a catalyst to do that” (personal communication, 2017).

*Retention Rate:* The CitySprouts Middle-School program inherently has a high retention rate, as they work with children each year at the same schools. Program sign-ups are located online as well as in the school libraries, making them accessible for all students in each school. Summer programs have lower retention rates because the program is designed as a month long internship that students must apply to. Additionally, the internship is only open to rising 6th-9th graders who will be 11-14 years old during the summer.

*School Involvement:* CitySprouts excels at this criteria, as the whole organization is centered around partnering with local public schools to create and implement garden curriculum. Today, the CitySprouts programs serves more than 6,000 students and 225 teachers in 23 public schools in Cambridge and Boston through its Middle School and School Partnership Programs. The School Partnership Program aims to build local “schools’ capacity to integrate school gardens as an instructional resource for teachers, an effective and engaging means for food and health education for students, and as a unifying center to strengthen school communities and family

involvement” (CitySprouts, 2017, p. 1). As mentioned briefly above, CitySprouts garden educators dedicate ten hours of support per week for each partner school.

*Professional Development:* CitySprouts offers the CitySprouts Teacher Forum, a community of for garden-based educators, teachers, parents, nonprofit partners, and volunteers to ask each other questions about the best-practices for implementing garden-based curriculum in the classroom (CitySprouts 2017). Participants share their experiences excitement and personal experiences working with children in the garden. Additionally, the Teacher Forum has webinars available for teachers online to discuss the challenges of incorporating garden education into a classroom or school garden setting as well as the potential. Examples of webinar topics include: nonfiction writing, restorative gardening, garden organisms, and garden storytelling.

*Advertising:* CitySprouts mostly relies on word-of-mouth advertising. Usually students who have completed the summer programs will tell their friends and encourage them to apply. Applications for the summer internship program and sign-ups for afterschool can be found in each school library or online. However, CitySprouts does not need to rely as heavily on advertisements as they have secured school partnerships.

### **Stone Barns (Tarrytown, New York)**

Stone Barns is located in Tarrytown, New York and was founded in 1990 by the Rockefeller Family. They are a working farm dedicated to practicing resilient, transparent, four-season agriculture and are open to the public as a hub of learning, creativity, and experimentation (Stone Barns 2017). Stone Barns has become a large player within the farm-based education world and are a case study that fulfills all six of our assessment criteria.

Community Engagement: Stone Barns is heavily invested in the greater New York City community region. They work extensively throughout the year with NYC public schools as well as a few private schools. Stone Barns conducts semester-long outreach programs where they transport their curriculum into New York City public schools. Stone Barns as of late has transitioned to only working with High School students. In terms of the local community of Tarrytown and Westchester County, Stone Barns is involved in a variety of ways. They work with a few local schools, however they also have a fully functioning restaurant on their property as well. The restaurant Blue Hill at Stone Barns is a nationally renowned restaurant that has received a one star Michelin rating. Through the avenue of the restaurant and farm, Stone Barns has created a multifaceted platform for community engagement.

Cultural Identity: Stone Barns has made it their mission to create a healthy, sustainable food system that benefits all members of the community. At the heart of their organization is food security; the right for all people, at all times, to have access to safe, nutritious, healthy and culturally appropriate food. Stone Barns has used the platform of food to bridge gaps between other human rights issues within our societal structure. Rene Marion, the executive director of Stone Barns reiterated that “I don't think you can have a conversation about food that isn't multidisciplinary” (personal communication, 2017). Stone Barns has a cultural identity that is centered around food and they promote such belief through their educational programs as well as in the restaurant.

Retention Rate: Stone Barns, as elaborated above, strictly works with High School students primarily from New York City public schools. Stone Barns fills their summer high school program by sourcing students they have worked with during their school year outreach programs. Stone Barns’ summer high school program has three different sessions that are each two weeks in length.



Each individual summer session has 40 students. Stone Barns feels that having smaller high school aged groups allows them to conduct far more intensive and rewarding sessions for their students. Stone Barns has no issue filling their summer program sessions. Stone Barns' summer program is made up  $\frac{1}{3}$  scholarship students while the remaining students pay full tuition. Through their national and international cemented reputation, Stone Barns has had no difficulty retaining their stakeholders and students.

*School Involvement:* Stone Barns is heavily involved in New York City public schools throughout the school year. They have an extremely comprehensive curriculum that offers a multifaceted avenue to meet New York State Standards. In addition, Stone Barns often will tailor their program and curriculum for the stakeholder they are working with. For example, if they are working with a group high school AP Environmental Science students, their educators will begin with a topic like soil health. Stone Barns not only works with students, they have a comprehensive summer teacher training seminar as well. During the final two weeks of their summer programming schedule they conduct a teacher training. Teachers come from all across the United States to Stone Barns in order to learn their curriculum as well as a variety of teaching techniques.

*Professional Development:* The high school program that Stone Barns runs has created an avenue for former students to potentially seek summer employment within the role of a general counselor of sorts. In terms of traditional upward mobility from student to educator is not as common as other farms within our study. Stone Barns over the past few years has become even more selective within their human resources department. All the educators at Stone Barns have years of experience within traditional schooling, as well higher degrees achieved within their own respective fields.

Advertising: Stone Barns, out of all the farms within our study, has the most comprehensive marketing and advertising platform. Stone Barns Marketing and Philanthropy department has seven full-time employees. Stone Barns has not had any issues raising money since they have such a widespread reputation. Quite recently Stone Barns received a large grant from the Unilever Corporation in order to expand their curriculum, as well as their teacher training programs. Stone Barns advertises and markets on a scale that is not comparable to any other farm we studied. This specific criteria assessment of Stone Barns was not necessarily helpful for comparison's sake, but it did provide insight into the potential for scaling up farm education operations, funding, and programming.

#### **Lakeside School at Black Kettle Farm (Essex, New York)**

Lakeside School at Black Kettle Farm is an early childhood/elementary Waldorf School as well as a fully operational farm. Lakeside School has a preschool program, kindergarten as well as grades 1-3. Lakeside School is a small educational program that has a total of 40 students and four full-time educators. Lakeside School is outdoor based educational programming that values the immersion of children in nature. Lakeside School strongly believes that the influence of nature during the developmental stage is vital for each child's success.

Community Engagement: Lakeside School at Black Kettle Farm is located in Essex New York near the banks of Lake Champlain. Lakeside believes heavily in community involvement and education. They work with local farmers who tend and harvest the land on Black Kettle Farm. In addition, Lakeside will often bring in local community members who have specialized skills that they are willing to teach through a public workshop. Maeve Taylor, the Director of Lakeside School, is herself a local organic dairy farmer as well as a mother of a child within the school. The

early childhood program for the 1-3 year olds is conducted hand in hand with the families of the students. Parents are encouraged to visit the farm and participate in programs if they are available. They facilitate a program for the youngest children where their parents or parent comes to school with them to explore and play, for around two hours. The program serves as a beneficial outlet for those children, and enables school parents to connect with each other in a unique setting on Black Kettle Farm.

Cultural Identity: “Lakeside School is a play based outdoor Waldorf early education program. Lakeside School is situated amidst the Adirondack Mountains and the fertile farmland of the Boquet River Valley, and the school provides an enriching natural setting for many programs, including year-round childcare, a farm- and forest-based Kindergarten, and mixed-grade Early Elementary instruction” (personal conversation, 2017). Lakeside embraces their sense of place and it rings throughout their mission and culture. Every part of their program is place based and incorporates the hyper local landscape. Lakeside has a forest kindergarten program where they incorporate the synthesis of farm and forest on Black Kettle Farm. Every week, kindergarten students embark on expeditions within their forest on the farm. A sense of place and cultural identity is an integral part of Lakeside School.

Retention Rate: Lakeside School has a small student base as well as a unique educational platform and philosophy. Lakeside attracts students through their unique outdoor based Waldorf program. Waldorf programs have a unique clientele that tend to seek out their local programs for their children. Since Lakeside is the only Waldorf in their area they tend to attract any Waldorf believers to their school. However, once the students have aged out of the Waldorf programming there is not much opportunity for further involvement with the farm. Lakeside School is a

grassroots organization that relies on a great deal of volunteer involvement. Volunteers are sourced through their network of families and stakeholders within their community.

*School Involvement:* Lakeside School has very little outside involvement in other schools. They are their own independent educational operation so they do not collaborate with any other educational entities.

*Professional Development:* Lakeside has five teachers that work at the school. Four out of five of the educators are full-time employees. Lakeside seeks to add one more part-time educator next year to bring their total to six Lakeside educators.

*Advertising:* Lakeside School conducts a decent amount of local advertising; however, the majority of their promotion comes through word of mouth. In addition, Lakeside School is a developing member of the Waldorf Early Childhood Association of North America. Lakeside school also does some promotion through online sources as well as operating their own blog. The Lakeside blog allows them to connect with their parents on a day to day basis through multimedia.

### **Shelburne Farms (Shelburne, Vermont)**

Shelburne Farms is a nonprofit organization in Shelburne, Vermont working to cultivate a sustainable future through farm-based education, community engagement, and encouraging stewardship of natural, agricultural, and cultural resources for the past 40 years. Their 1,400-acre campus is home to a working dairy, meat, maple syrup and produce farm, historical buildings, a bakery, a seasonal inn, and the Farm Barn that acts as a regional hub for educational programs that serve over 150,000 people annually. Shelburne Farms is a global leader for farm-based education operations and recently received the United Nations designation as a Regional Center of Expertise

on Education for Sustainable Development for getting two-thirds of Vermont elementary students engaged in farm-to-school programming.

Community Engagement: With community programs and resources that act at the local, regional, national, and global level, Shelburne is an example for other farm-based education centers to follow. In 2001, Shelburne Farms partnered with the University of Vermont to create the PLACE program, a year-long exploration of history, culture, and ecology of Vermont communities (Shelburne Farms, 2017). PLACE staff work with local schools, town commissioners, conservation organizations, and historical societies to create an integrated series of presentations, field trips, and workshops intended to highlight and celebrate a town's culture. The partnership with UVM allows graduate students and community members to work together on place-based research. So far, PLACE has reached 14 communities with a 15th underway in New Haven, Vermont.

Cultural identity: At the heart of the Shelburne Farms operation is educating for a more sustainable future. They place strong emphasis on the importance of local food systems and providers, connecting communities back to their landscapes, creating partnerships within the community, giving educators the tools they need to implement FBE in the classroom, and promoting food access and security. They try to define sustainability in a way that's palatable for students and campers. Often times sustainability is incorporated into the camp curriculum through a guiding question that may not have any clear answer, but requires children to engage in critical thought. Some examples of guiding questions include: What are you thankful for? What nourishes us? How do you feed a community? Educators will refer back to the guiding question throughout the week to keep campers thinking about the subject. The idea is to look at sustainability through the lens of big ideas like cycles on the farm, community, change over time or the interdependence

of processes and living things. Vera says, “If kids can understand those ideas like cycles and change over time then they’re able to think in a way that lends towards sustainability.”

Moreover, Shelburne does not offer a program unless it aligns with and encourages the organization’s three guiding principles: 1) understanding connections, 2) connecting to place and 3) making a difference. Shelburne has taken its time defining and redefining the programming they offer to ensure that the programs offered maintain the integrity of these principles.

*Retention Rate:* Retention rate is not usually an issue as Shelburne usually deals with having too high of a demand for educational programs. For example, camp admission is an application process and child may attend only one camp session. Summer camp has 600 spots and 1,200 applicants, so Shelburne Farms ends up needing to turning away almost half of the applicants. In terms of the professional development programs, Vera notes that Shelburne “gets a lot of incredible feedback about how they’re life changing and helping to transform schools around the country. And then every now and then we’ll have trouble filling a program. But we have a PR department of about two to three people that do their best to market our program.”

*School Involvement:* Shelburne Farms has offered seasonal four-hour, one-day trips for K-8th students since 1978. Field trips can be customized to meet teacher needs or curricular-based needs and are offered by season, activity type, and big ideas or themes such as community, adaptations in nature, and cycles. The Children’s Farmyard is open from mid-May to mid-October, trips here are self-guided. The Farmyard is a place where school groups can come explore the area at their own pace and participate in milking cows, making wool bracelets, hosing pigs down or watching the Chicken Parade at 10:30 A.M. For schools who cannot make it to the campus Shelburne offers sending one of their farm-based educators to lead an activity in the school. While school visits are less popular, Vera Simon-Nobes, a full-time educator at Shelburne, says there is

“one educator who is on staff who does very little programming right here [at Shelburne Farms], but she’s out in her community working with something like 15 schools doing just specifically dairy education.”

In addition to school group visits and outreach, Shelburne Farms partners with local schools for curriculum and professional development. Vermont Food Education Every Day (VT FEED), the Sustainable Schools Project, and A Forest For Every Classroom are perhaps the most popular and successful of these programs. VT FEED is a farm-to-school project run by Shelburne Farms and Northeast Organic Farm Association Vermont (NOFA-VT) working to bridge the disconnect between our land, food, community and agricultural roots in order to live in a sustainable environment where local farms are abundant and food is accessible and healthy (Shelburne Farms, 2017). The program supports Vermont teachers by providing training, mentoring, and technical assistance to schools, local farms, and other nonprofit organizations working to build a strong connection between farm-to-school. Through VT FEED Shelburne serves as the Northeast Regional Leader for the National Farm-to-School Network and coordinates the Vermont Farm to School Network to facilitate local connections, foster local engagement, and work to increase farm to school initiatives in the state (Shelburne Farms, 2017). One of VT FEED’s most popular events is Jr Iron Chef VT, a statewide culinary competition that challenges teams of middle and high school students to create healthy, local dishes that inspire school meal programs (VT FEED, 2017). Junior Iron Chef VT is a means of giving younger people a voice in how the local food system is run.

*Professional Development:* Shelburne offers professional development opportunities for educators that help incorporate sustainability and community into the curriculum such as the Sustainable School Project and A Forest For Every Classroom. The Sustainable School Project is

a “dynamic model for school improvement and civic engagement designed to help schools use sustainability as an integrating contact for curriculum, community partnerships, and campus practices” (Shelburne 2017). The program works to incorporate service learning experiences into the curriculum and promote self-efficacy, or the belief one is capable to make sustainable change, in students and educators. Sustainable School Project targets the “Four C’s” -- curriculum, campus practices and culture, community partnerships, and collaboration and provides online starter kits that include what schools need to begin integrating principles of sustainability into the classroom. A host of professional development modules, curricular examples, and an education for sustainability guide are all available to educators online. So far, the program is working with nine schools in Vermont. A Forest For Every Classroom is an award-winning professional development program for K-12 teachers of all disciplines that helps teachers incorporate place-based education into Common Core and Next Generation Science Standards (NGSS) by converting the community into a classroom. At the heart of this year-long professional development program is “the belief that students who are immersed in the interdisciplinary study of their place will be more eager to learn about and be involved in the stewardship of their communities and surrounding lands” (Shelburne Farms 2017). Put simply, Vera describes the professional development programs as a means of “making sure teachers can come here to learn and then bring that learning to their kids. We can reach so many more kids through professional development with their teachers.”

Advertising: There is not much need for formal advertisement as Shelburne Farms does not only have a reputation as a reputable farm-based education center within the community, but also globally. However, there are still some programs that need promotion. For example, Shelburne offers playdates on one Saturday morning of each month in the winter. Those are not advertised and usually have about 80 people show up to participate, which is not a full program. As



mentioned, Shelburne does have a PR team that is in charge of creating calendars, promoting special events, and encouraging participation across all programs.

### **Pineland Farm (New Gloucester, Maine)**

Located in the rolling hills of New Gloucester, Maine, Pineland Farms is a 5,000-acre working farm, diverse business campus and educational and recreational venue that welcomes visitors to enjoy its beautiful rural landscape. Pineland Farms' mission is to provide a productive and educational venue that enriches the community by demonstrating responsible farming techniques, offering educational opportunities and encouraging a healthy lifestyle through recreation.

Community Engagement: Pineland Farm is heavily involved within their local community through the hosting of workshops on topics such as cheese making and micro mushroom cultivation. In addition to skill based workshops, Pineland Farm partners with a wide variety of local businesses to host special events. Pineland Farm also strives to involve the local adult community in the farm as well by outsourcing professionals to conduct seminars on various subjects. Taught by local community members, artists, and professors, adult enrichment classes offer focused instruction on a variety of subjects and skills. They are designed to engage participants in history, craft, agriculture, and ecology. Whether exploring the fiber arts, learning to drive a draft horse, or enjoying a slide presentation on the local landscape, Pineland Farm's programs help introduce individuals to new techniques and ideas and connect one to others in the local area to help build a network and further enhance an individual's enjoyment. Pineland Farm is not only a working farm but a community space and venue for all local residents to use.

*Cultural Identity:* Learning is at the heart of Pineland Farms' mission. As the culture in southern Maine shifts to an increasingly urban and suburban way of life, it is more important than ever to emphasize the vital role of farming. Pineland Farm seeks to embrace and prolong the once vital agrarian ideal of the state of Maine. Maine has a strong history of expansive and influential agricultural land. Pineland seeks to carry on this cultural identity while embracing new sustainable and resilient techniques for the future. Pineland Farm strongly believes in the power of place and place based education. Pineland Farm's educational programming is all tailored to be place specific, strictly focusing on the southern Maine landscape as a whole.

*Retention Rate:* Pineland Farm has seen their family programming as an effective pipeline to feed their later age activities. Pineland Farm has family programming offered for children ages 3-5 to experience quality farm-based programs with their loved ones. In addition to family programming, Pineland Farm is heavily involved in local preschool programs through field trips. The preschool field trips are extremely popular within the community and are an effective way to engage the youth from the beginning within a farm education program.

*School Involvement:* Pineland Farm has a decent amount of involvement in local school outreach and programming. Pineland conducts roughly 10 local educational outreach program in schools annually. These programs have consisted of but are not limited to ice cream programs, composting and many more. Pineland Farm finds that steady school involvement throughout the year in turn bolsters their summer and year round on site programming. Outreach programs in local schools are an effective tool for sparking interest in your youthful stakeholder.

*Professional Development:* Employees at Pineland Farms are allowed a great deal of mobility within the organization. Employees are encouraged to teach a variety of disciplines. In

addition, each year an employee returns they are allowed to select their initial teaching disciplines. On the job the training is also provided for employees in fields such as animal husbandry and other fields that require hands on preparation. Educators and the curriculum director plan lessons together and bounce off ideas amongst each other. The lesson planning process is extremely linear in terms of clout. All employees are willing to voice opinions and come to an agreement regarding adequate educational programming for the farm.

Advertising: Pineland Farm does not engage in a great deal of advertising and promotion. They rely heavily on word of mouth throughout the local communities. Pineland Farm also feels that word of mouth is the most effective form of promotion they have ever experienced. They do also engage in a wide array of social medias such as Facebook, Twitter and Instagram. Pineland Farms also distributes flyers to local schools offering enriching field trips at reduced rates.

### **Morris Farm Trust (Wicasset, Maine)**

Morris Farm Trust is a small 50-acre community farm located in Wicasset, Maine. Thorough their programming they strive to “connect people with local farms and with sustainable agriculture” (personal conversation 2017). They work to connect people back to their immediate environment and bring the value of labor back to the forefront of their community. They run a farm store and educational programs for children and adults of all ages.

Community Engagement: Morris Farm’s mission statement is centered around strengthening community through hard work and engagement with the land. They sell garden plots and memberships annually for people in the surrounding area. The farm currently does summer programming as well as February and April break farm camps. As of now their summer camps consist of 20 children, ages 5-12. Lisa Packard, the farms sole educator at the moment discussed the goals of farm-based education camps and specifically what Morris Farm aims to achieve with

their programming: “farm education should be ultimately about connecting people with themselves, children with themselves, their peers and then with the environment around them.” (personal conversation, 2017).

At the camps the children will do team-building exercises, fiber arts, cheese and yogurt making and as much outdoor time as the weather allows. They are a growing farm and through their educational programming and community garden plots and memberships they are growing into and becoming pillars of the community. Morris Farm has also been a host location for many local farmers throughout the years and supports a University of Maine Extension Master Gardener Demonstration Garden. the Morris Farm Wiscasset Primary School Garden, Wiscasset Community Gardens, and current resident farmer, Hannah Court and her Wandering Root Farm. Ten of their acres are woodland which allows ample space for camping year round, adding another facet of use to their land.

*Cultural Identity:* One of the primary goals of Morris Farm is to create a strong identity in the community by building on the agrarian history of the region they are located. They discuss the importance of preserving some of the rapidly disappearing “working landscapes” (Morris Farm Trust, 2016) of Maine. Packard also discusses the importance of creating an identity when designing and implementing environmental education and place based education curriculums. She states that it is crucial to look at the big picture of what is important to the specific program:

The objective for Farm Camp at Morris Farm is to have the children really connect with the unique aspects that we have. So the unique animals that we have, the unique fields that we have, the plants that we have and really have them get to know that place so that they want to keep coming back. I also found that with environmental education that when children know one place really well they can transfer that well and have the thirst, the hunger to take it to get to know another place very well.  
(personal conversation, 2017)

This goal of Morris Farm is to create a unique experience for each child that visits the farm. They do this by creating distinctive programs and features on their farm that shape their brand and identity, such as their animals: calves, goats and bees and the different programming possibilities those animals hold.

*Retention Rate:* The programming is still relatively new at Morris Farm so there has not been much opportunity for retaining students through the years. But Packard does give advice on creating experiences that foster passion to return:

I think any program that we do where children are brought down to a smaller level like when we get really close-like in the wintertime we were looking at the praying mantis egg sack on the tree branch. You could be looking right at it and not even know. Then when a child all of a sudden is awakened to it-its like ‘wow that tiny little egg sac is right in front of me and I didn’t notice it, what other things are right in front of me that I didn’t notice?’ So I think a program is really successful when eyes are widened with any age....To define success I would say to me a successful program is when children are excited to come back. And when they also feel like there’s been an awakening in their sense of curiosity that’s been peaked... they’re left really wondering and just curious (personal conversation, 2017).

This relates to the sense of unique identity discussed above. Children are likely to return if they a) have fun, and b) feel a connection to the place.

*School Involvement:* Morris Farm is still in the development stage of building in-school programming and are fighting the Maine government. The Next Generation Science Standards were approved unanimously in the state but then vetoed by the governor. So, as Packard states, “we’re kinda in the situation where teachers are quietly and slowly adopting the Next Generation Science Standards because they know it's coming but it has not been stated legally... So I’m still going to turn to those and look to them and make plans based on that” (personal conversation, 2017). Packard always takes the time to study the state standards: “Whenever I’m designing curriculum I always go to the standards first. Not to limit myself to an extent to just direct myself” (personal conversation, 2017). She discusses the importance of getting Public School teachers

involved with environmental education because it automatically adds legitimacy to whatever program you are involved with: “If we can have more public school teachers in the system outside using the playground, using the little strips of property beside the school and around the school then we are making Environmental Education a viable profession because public school teachers are doing it as part of their solid pay” (personal conversation, 2017).

*Professional Development:* As of now, there is only the one educator at Morris Farm, Lisa Packard, who has ample experience training educators through her past jobs at Chewonki in Maine and an outdoor education center in Arizona. There is no formal training at Morris Farm, although there are adult education workshops being planned in the future. There is no need for extensive training with such a small staff.

*Advertising:* According to Lisa Packard, advertising is primarily word of mouth and social media based. She stated that “Facebook is the social media word of mouth strategy” (personal conversation 2017). She also mentioned the importance of camaraderie when working to fill enrollment numbers. Children (specifically middle school aged children) are more likely to join a camp if a friend is also going. They also put up flyers for programs that they will put up at places where interested clientele would likely go: “all of the local cafes, food co-ops and health food stores and YMCA’s and health food stores” (personal conversation 2017).

### **New Pond Farm Educational Center (Redding, Connecticut)**

New Pond Farm Educational Center is a nonprofit environmental education center located in Redding, Connecticut with a small working farm that has been connecting the community to their local landscape and agricultural practices for the past 30 years. The center uses its 102-acre

property and facilities to offer school field trips, school visits, adult lectures, family programs, community events, children's activities and a summer camp.

Community Involvement: New Pond Farm has a variety of workshops available for families and adults as well as special events. Families are able to participate in stargazing, Family Campout, Family farm chores with the barn animals, and an introduction to beekeeping. Adult programming includes a forest therapy walk, bird watching and breakfast, and knitting farm hats with wool that was hand-spun at the farm. Moreover, New Pond Farm Hosts special or fundraising events such as the Harvest Dinner and Harvest Festival in the fall. The Harvest Dinner is an event open to the community in which friends and neighbors are encouraged to come listen to live music and dine on freshly harvested foods from the farm (New Pond Farm 2017). The Harvest Festival, perhaps the most popular event, has historical demonstrations including antique tools, rope making, and kettle corn popping, as well as horse-drawn wagon rides through the pasture, and farm crafts.

Cultural Identity: New Pond Farm's mission is to connect people with the land that enriches and sustains us all. More specifically, they are committed to being "a small and personal education center, sharing environmental, historical and agricultural lessons with local schools and with members of the community" (New Pond Farm 2017). Not only does the farm inspire local schools to become environmental stewards, but they joined the national No Children Left Inside Coalition, a movement aimed at providing funding for environmental education in order to enhance environmental literacy for K-12. New Pond Farm makes FBE and environmental education accessible for students of different socioeconomic backgrounds through their residential summer camp program. For the residential summer camp, New Pond Farm works with agencies in the inner cities of Fairfield County – Norwalk Bridgeport and Danbury – to identify possible candidates to come to a session of camp. The entire cost of the camp, \$1,800, is covered by a

scholarship offered to 24 underserved children. Through the camp, these children are able to participate in activities they might not be able to otherwise such as going swimming, stargazing, harvesting, working with farmers, tasting fresh food from the garden, camping, and more.

*Retention Rate:* New Pond Farm hopes that the educational field trips they offer will excite students and encourage them to visit the farm again, join summer camp, or tell their parents about workshops. However, the residential camp program has a very low retention rate because the program is meant to offer opportunities to new underserved youth in order to reach as many nearby inner-city youths as possible.

*School Involvement:* From September to June, New Pond Farm offers six different school programs that deal with environment, history, and agriculture or the intersection of all three: Freshwater Exploration, Habitat Hunts, Fall Farm and Fiber, Spring Farm and Honey Bees, Maple sugaring, and Eastern Woodland Indians. These hands-on field trips give classroom lessons context in the natural world and make concepts more meaningful and digestible for students. The environmental programs convert woodlands, wetlands, pasture, and streams into classrooms that foster connections between students and natural habitats. For example, the Freshwater Explorations and Habitat Hunts offer students the opportunity to wander the pond, march, and streams to discover tadpoles or learn the ecological functions that distinguish woodlands from wetlands. Whereas farm programs emphasize how food production is tied to the farm in an effort to combat the disconnect readily available food at grocery stores has created between consumers and the origins of their food. When students arrive at New Pond Farm for the program, they become farmers. In the milking barn students can learn about milk production or how cow manure can act as a natural fertilizer, at the chicken coop students observe chicken behavior and gather freshly laid eggs, they spin wool from real sheep and craft, and in the Spring they learn about



honeybees and their role in pollination. New Pond Farm also acts as a home base for the local high school's astronomy class.

In order to encourage schools to visit the farm, Tim Laughlin, New Pond Farm's Program Director, relies on the ability to customize curriculum to meet specific teacher needs and State Standards. He stated, "We have some base programs that we advertise in a brochure, but then if a teacher calls I can create a program for them. Customize it. And then they can submit that to their principal for approval." Tim has also sent letters and brochures to all the Parent Teacher Organizations (PTO) in the county. As such, around 5,000 students visit New Pond Farm every year.

*Professional Development:* At New Pond Farm there is no formal educator training as there are eight part-time educators rather than full-time. The farm utilizes more of a learn-by-doing model of professional development. Seasoned educators become mentors for new educators with constant communication and leading by example.

*Advertising:* New Pond Farm sends out calendars and program brochures every few months to their membership base of 700 families to encourage participation. However, their most effective advertising happens on social media via Twitter, Instagram, and Facebook. Tim explains, "We do a lot on Facebook, Instagram, and Twitter. And what I'm finding is that despite people having the program calendars they aren't signing up, but the minute we hit them with a couple of Tweets and Instagram as friendly reminders it refreshes their memory and they sign up last minute." They also place some advertisements in local newspapers when hosting a special event such as the Harvest Dinner or Harvest Fest.

## **Radix Ecological Sustainability Center (Albany, New York)**

The Radix Center is located on a one-acre plot in the south side of downtown Albany. It is a non-profit organization running an urban environmental education center and demonstration sight. It focuses on the implementation of sustainable tools and technologies designed to teach urban residents with a special focus on youth. Radix's main mission is to design simple and affordable ways to control and manage global resources: food, water, energy and waste management. They do so through a variety of sustainable systems in place at the center such as a rainwater collection barrels, vermicomposting bins, and aquaponics. Their hope is to craft a model that can be replicated on any level, city, state, national or globally.

Community Engagement: In an effort to promote sustainable urban development the Radix Center offers The Regenerative Urban Sustainability Training (R.U.S.T.), “an intensive weekend workshop of skills for building ecologically and socially resilient cities” (personal conversation, 2017). Scott Kellogg and other sustainability experts offer participants a ‘toolbox’ of skills and knowledge to implement sustainable systems in their own communities. Typical topics of the program include “Aquaponics: fish & plant integration,” “Waste to soil: composting food wastes with animals, worms and microbes,” and “Microlivestock: chickens, pigeons, and mini-goats” (personal conversation, 2017). So far the program has reached nearly 650 participants.

The Radix Center provides a Community Compost Initiative, a weekly compost pick-up service, to discourage throwing food waste into the garbage that ends up in landfills creating greenhouse gas emissions. Community members will receive a compostable bag inside a filtered, no-odor 2.4-gallon compost container in which they can place food scraps. The Radix Center will collect it from member's doorstep once a week, replace the bag, and turn community scraps into nutrient-dense fertilizer for a small fee. For community members who cannot afford to be apart of

the Compost Initiative, the Radix Center will accept food scraps for free. The vision for the program goes beyond compost education for the community as Scott Kellogg believes composting is an efficient means of controlling pollutants found in Albany residents' soil. He explains, "...the remedy to this [soil contamination] is to build as much compost as you can and use it where places are contaminated. Compost can be used to bind up heavy metals or accelerate the degradation of organic pollutants" (personal conversation, 2017).

*Cultural Identity:* The Radix Center works to increase the availability of safe, nutritious, fresh food for residents in the South End of Albany, an area officially designated as a "food desert". A food desert is defined by the USDA as "a part of the country void of fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas" as a function of a lack of grocery stores, farmer's markets, and health food suppliers (2017). In an effort to address food security, Radix partners with neighborhood organizations such as Trinity Alliance, Grand Street Community Arts (GSCA), and AVillage, Inc. for the South End Healthy Food Initiative, which supports a South End Farmer's Market that accepts government funded nutrition assistance programs as payment such as the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

During the summer the Radix Center offers a five-week program for underserved Albany youth as a part of city's L.I.G.H.T. (Learning, Initiative and Gaining Headway Together) Summer Youth Employment Program. At Radix the program targets 14-18 year olds whose household income is below 200 percent of the federal poverty level and could benefit from having a summer income and learning marketable skills through farm operation. The program is able to offer participants a wage between \$7.00/hour and \$9.70/hour, depending on the student's age. In Summer 2016, participants of the Summer Youth Program were able to learn about the dangers of

lead contamination in soil and its implications for urban gardening from a New York State Department of Health representative. Students measured lead concentration levels in soil collected by concerned residents.

*Retention Rate:* As Scott Kellogg states, “One of our [Radix’s] key goals is to maintain continuity” (personal conversation, 2017). Through Radix’s School youth program, Kellogg hopes to maintain a level of involvement through the years as the children grow into the program. In order to feed the after school program he designed a 5-week eco-justice education program for High Schoolers where they are paid by the city: “kids come down here four days a week age 14-18 from 9 in the morning until 1 in the afternoon. Its part of Albany’s summer youth employment program so they actually get paid to come which is pretty cool and not by us-even better” (personal conversation, 2017). The children do a combination of garden work, and air quality monitoring as well as fun activities such as kayaking on the Hudson, and fixing up bikes and riding along the Albany rail trail. Through this mixture of environmental justice centered activism training and skills based work, the students feel connected to the place and foster a sense of continuity from their work from the summer into the after school program. When describing what keeps the students coming back to the farm, Kellogg states: “It’s building those trust based relationships with individual youth-there’s no substitute for that. Yeah it takes work but I think it’s really important, you know, and then for them to develop camaraderie with each other” (personal conversation, 2017). The students return to Radix because not only are they paid through the city, but they are learning ways to be effective global citizens and building interpersonal skills.

*School Involvement:* At the Radix Center, Scott Kellogg describes his educational programs as “focusing [a lot] on teaching ecological literacy, eco-education, bringing school groups and letting them develop a sense of familiarity and relationship with natural systems that

make it possible for us to live.” Kellogg wants to facilitate a relationship between students and the natural environment through interaction with sustainable systems, making sure to allow students to get their hands dirty and use all their senses – listening and watching, but also using taste and smell when appropriate. The Center has provided programming for classes from the Albany Montessori Magnet School, the Albany Free School, Woodland Hill Montessori School, Albany County Opportunity Inc. Olivia Rorie Head Start have attended workshops at the Radix Center, as well as youth groups from the Albany Howe Library, 15Love, Youth Organics, Troy Produce Project, Living Resources, and the Siena College High School Scholars Program (The Radix Center 2017). For their Giffen Elementary program, a public school right around the corner from the center, Kellogg partners with undergraduates at RPI in the eco-education program to visit four second grade classrooms on Wednesdays. “We’ve done things like grown microgreens, which can be done in little 1 x 2 foot trays – easy to go into a classroom window and kids get to go through the whole process of planting the seeds and watching them grow and harvest it,” Kellogg says.

For the past two years, the Radix Center has offered the Youth Employment Program to students from Albany High School, Albany Leadership Charter High for Girls, and Green Tech High School. Kellogg hopes to “bring urban agriculture and business skills together with the understanding that there is only going to be so many people that can make a living as a farmer or gardener, especially in the city. So they’re coming away with some marketable skills.” Students come to the Radix center after school and learn how to run a microgreens operation through hands-on participation. Students learn about cycles, such as the soil cycle when they take compost and sift and prepare it for garden beds, as well as how to cultivate plants. The students were also in charge of accounting for the weekly Farm Share.

In addition to the educational programs offered at the center, Kellogg is also a visiting professor at Skidmore College. So far Kellogg has taught Political Ecology, a required introductory-level course for Environmental Studies & Science majors, as well as Regenerative Urban Ecologies: Tools and Concepts for Building Socially and Environmentally Resilient Cities, a 300-level course working to “give students a toolkit of frameworks, methods, and strategies for addressing these challenges, ranging from top down governance and policy approaches to highly practical "hands-on" ecological technologies” (Skidmore College 2016). When he is not teaching at Skidmore, Kellogg is often invited to host special seminars or lectures for the community, such as his Mushroom Cultivation workshop in the Skidmore Community Garden two years ago.

Professional Development: Scott Kellogg is the sole full-time educator at Radix. He also hires seasonal interns and Americorps workers. When discussing employing educators at the farm Kellogg discusses his connection to RPI and students from the College who came to work on the farm as environmental educators:

Bringing in the RPI students – I thought, well that will be great I don’t necessarily always have to be the one teaching 2<sup>nd</sup> graders. But that sort of ended up becoming more work for me because I had to explain and break it down. But we actually got some funding for that part [RPI students] so that could work down the line. Cause that’s, the other piece to this is making it work as an organization based on what your funding sources are going to be. Especially when you’re a small, little nonprofit and passing that threshold where all of a sudden you become a fundable organization takes a lot of time. So little by little we’re getting there (personal conversation, 2017).

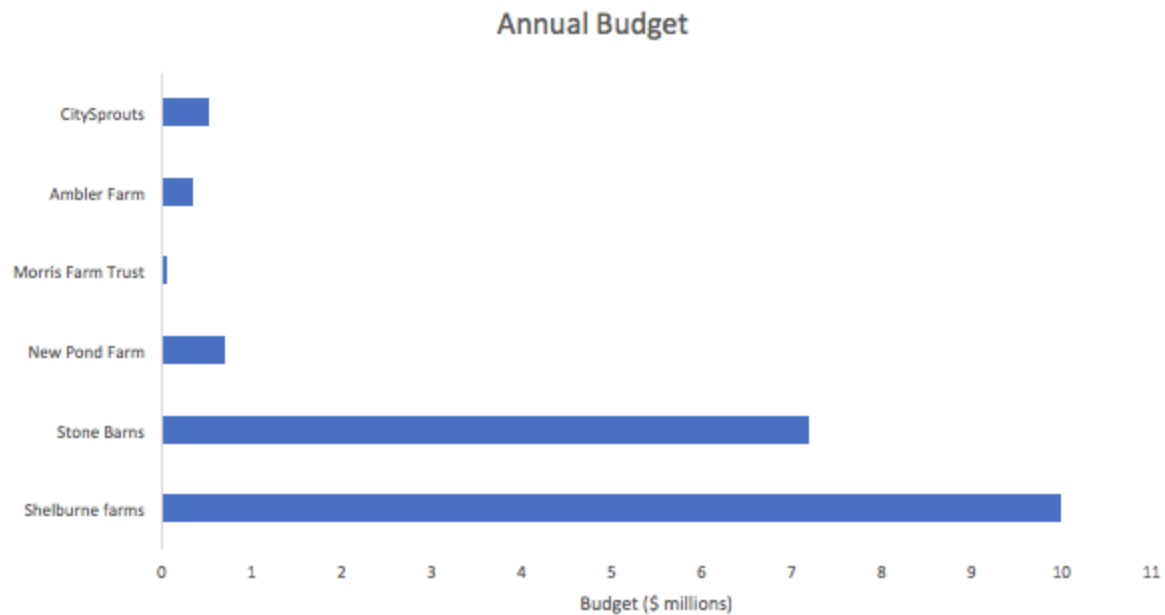
When hiring educators when first starting out it is important to account for the hours spent training and decide whether the training process continues to make the workers a cost-effective choice.

Advertising Methods: Kellogg primarily relies on word of mouth for the majority of advertising for Radix. Kellogg establishes his base of High School students and through his quality programming keeps people coming back year after year. Kellogg also discusses the coalitions he

builds with other organizations in the area and some of the advertising success could be attributed to the connection to these organizations. The farm is located right in the center of downtown Albany and is extremely visible and accessible to the community.

### **Quantitative Criteria**

The ten regional education farms we interviewed have a wide range of annual operation budgets. From Shelburne Farms at \$10 million a year to Morris Farm Trust at \$60,000 (Figure 2). A common thread seen throughout all of the farms, no matter the size of the budget, is that each farm spends approximately 40-50 percent of their annual budget on educational programming, including the salaries for their educators. The more established farms, such as Shelburne and Stone Barns have more educators and thus spend more money on salaries and programming and also tend to receive larger grants and donations than less well-known farms such as Radix or Morris Farm. We also found the majority of farms have some form of a membership program, boosting revenue and retention rate (Table 2).



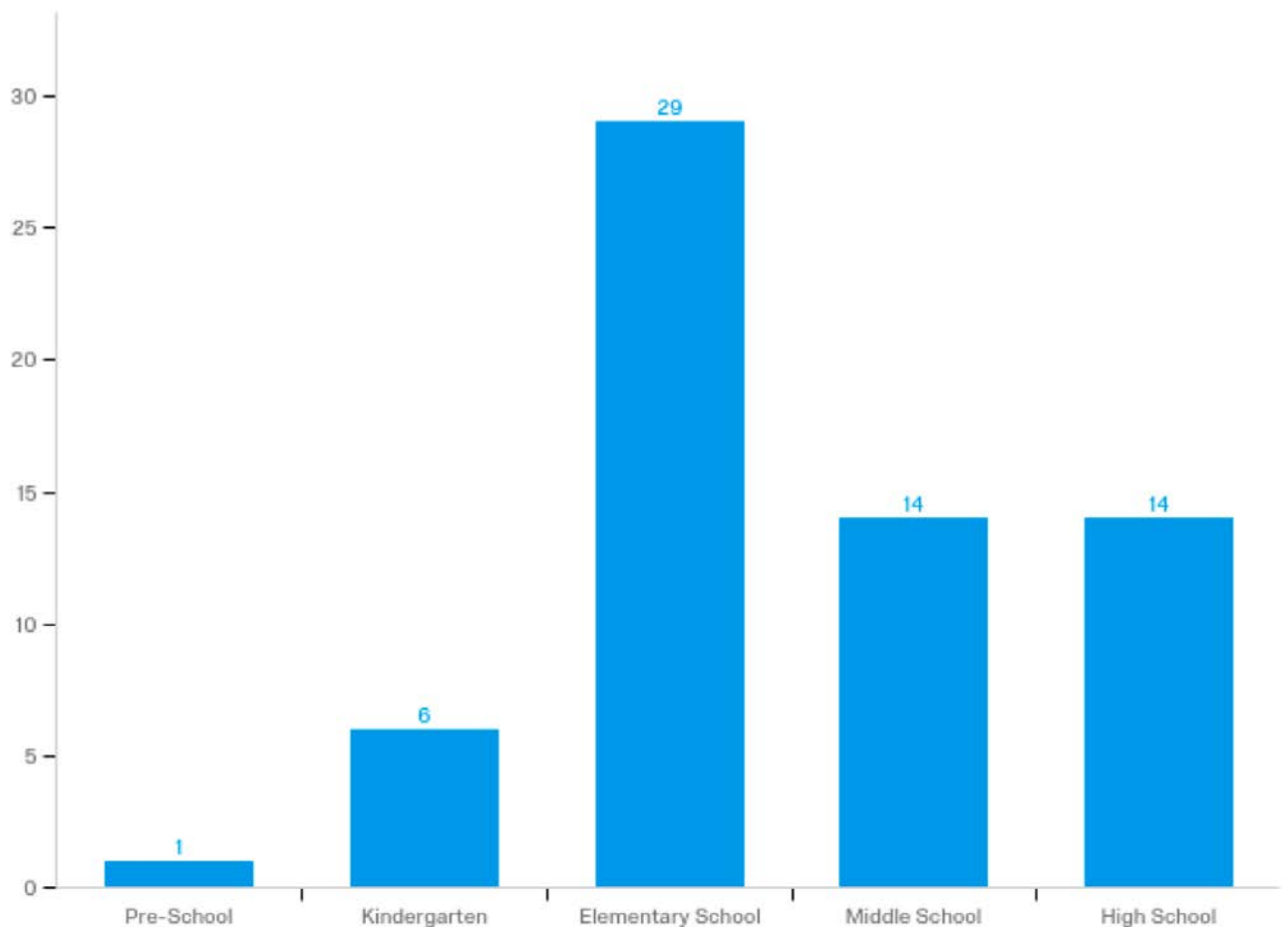
*Figure 2 Annual Operating Budget for Reported Farms*

Quantitative Cirteria Chart			
	Annual Budget	Number of full-time educators	Membership Program & Cost
Shelburne Farms	\$10 million	16	Yes
Stone Barns	\$7.2 million	4	Yes/ \$90-\$2,5000
Pineland Farms	N/A	3	Yes/ season pass is \$100
Ambler Farms	\$350,000	None	Yes/ \$50-\$1,000
CitySprouts	\$536,000	5	N/A
Lakeside School at Black Kettle Lake Farm	N/A	4	N/A
Bread and Butter Farms	N/A	None	Summer CSA - \$270 from June 12-August 28
Morris Farm Trust	\$60,000	1	Yes/ \$25-\$50 depending on level/number of people
Radix Ecological Sustainability Center	\$50,000	1	N/A
New Pond Farm	\$700,000	None	Yes/ \$75-\$5,000 depending on level of membership

*Table 2 Quantitative Criteria*



We received 62 responses on our survey of Saratoga County teachers, sent out to 33 schools (see appendix a). We received the highest number of responses from Elementary School teachers with 29 participants. Middle and High School teachers follow with 14 participants each followed by Kindergarten and pre-school respectively (figure 3).

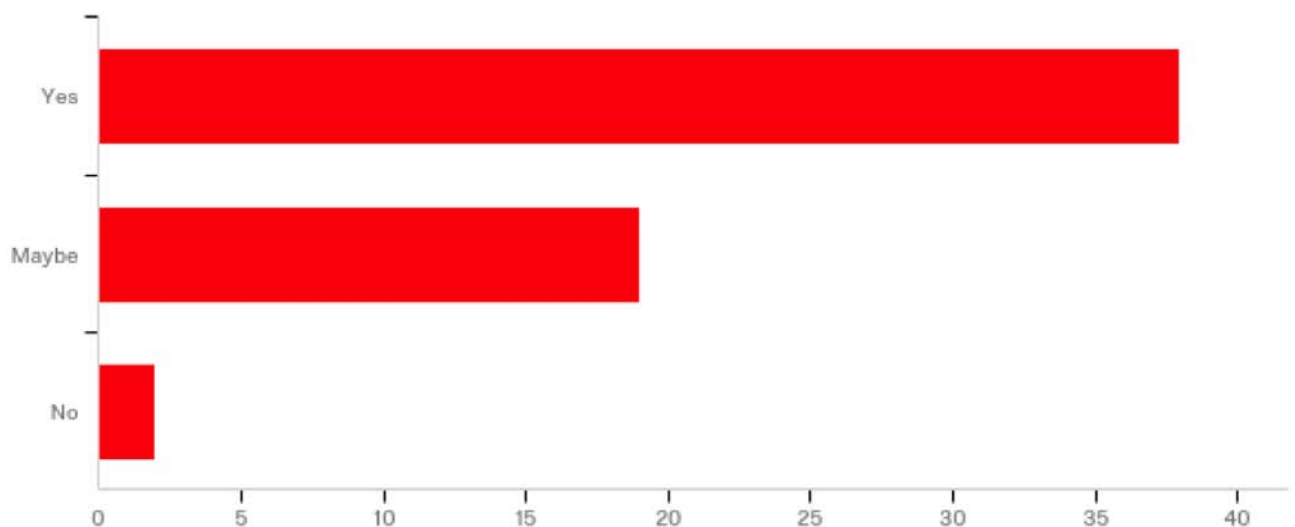


*Figure 3 Number of respondents by grade-level taught*

We asked the teachers to “Please describe a class that if taught at Pitney would strongly influence your ability/interest in taking a field trip to the farm.” Teachers had an opportunity to write-in answers of classes they would like to be taught at Pitney (see appendix a).

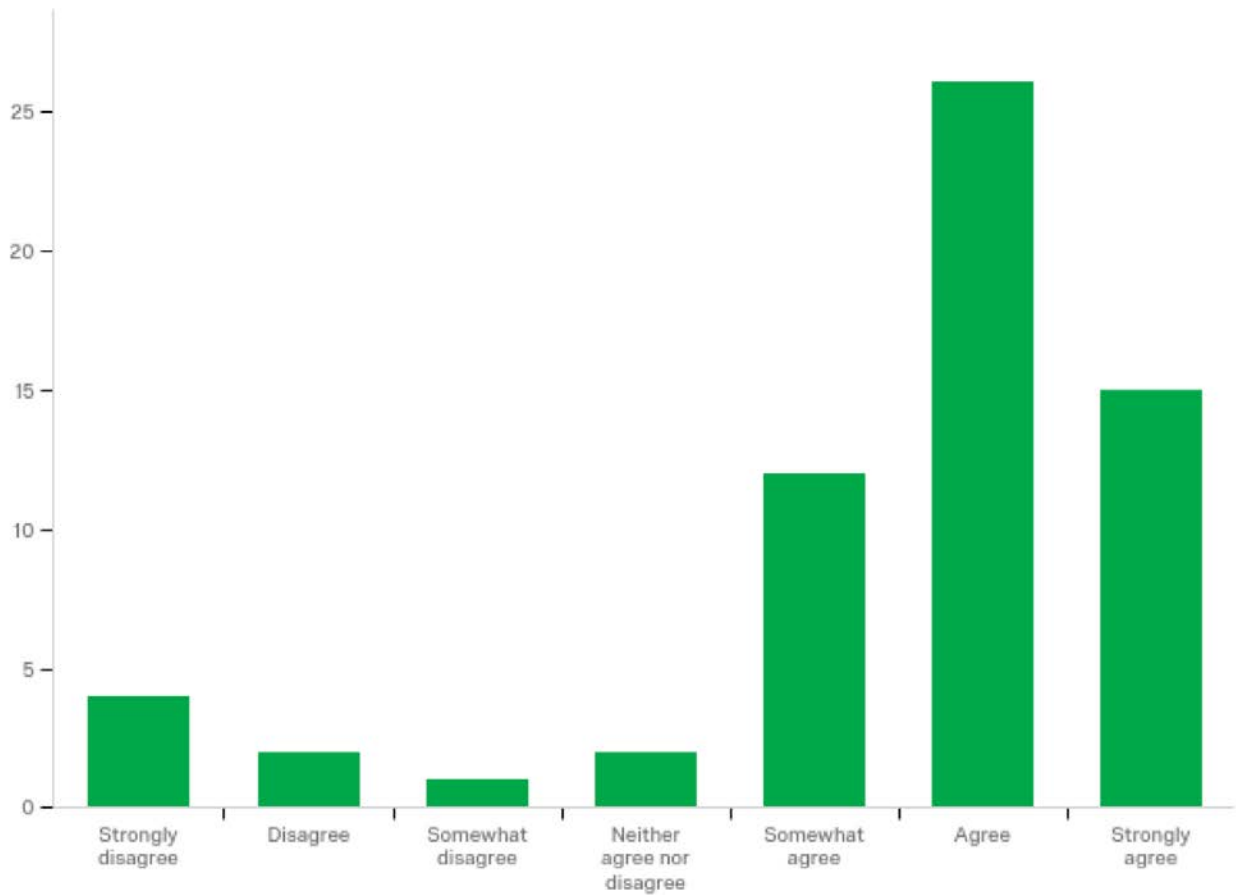
We compiled a list of classes not normally taught in traditional K-12 settings and asked the respondents to select all classes/topics they would be interested in teaching. The top two most popular topics were plant lifecycles (53 percent) and health/nutrition (52 percent) (appendix a).

We then gauged the teacher's interest in either taking a field trip to the farm with their children or having outreach educators come to their classroom. Both questions received positive responses. The first question asked "If you are interested in the aforementioned programs, but are unable to take a field trip to the farm, would you be interested in having a farm educator visit your classroom?" and 64.4 percent of respondents answered "yes" (figure 4).



*Figure 4 Teacher Interest in Outreach Programs*

Following this question, we asked the teachers to react to the following statement: "I would be extremely interested in taking my students on a field trip to Pitney Meadows Farms to participate in experiential education, such as lessons, workshops, or service learning." 85.5 percent of teachers said they either somewhat agreed, agreed or strongly agreed with this statement.



*Figure 5 Interest of Teachers Taking a Trip to Pitney Farm*

## **Recommendations**

### *1. Hiring AmeriCorps workings and interns*

Hiring AmeriCorps workers and interns during the first few years of operation is a cost-effective means of labor. AmeriCorps is appealing both for individuals looking for work and for organizations looking to hire as worker salaries are federally funded. Pitney Meadows Community farm could have free, full-time workers dedicated to fostering community partnerships, designing

farm-based curriculum for educational programming, or any other specific needs the farm may require during its start-up years. The program is ideal for AmeriCorps workers as they receive an educational award on top of the stipend that can go towards graduate school upon completion of service. Moreover, AmeriCorps utilizes a host of promotional channels to post job listings of participating organizations free of charge that make finding individuals interested in sustainable, community agriculture or education easy. For example, the Radix Center, in partnership with AVillage, Inc. and Hunger Free America, hires AmeriCorps VISTA workers every year. It is a full-time position to promote access to healthy, fresh, and safe food in Albany's South End (The Radix Center 2017). The workers are responsible for developing educational and marketing outreach strategies to encourage neighborhood residents to attend and shop at the South End Farmer's Market. Additionally, the worker is responsible for improving access to healthy food via nutritional education for low-income residents. This takes pressure off Scott Kellogg, the Program Director at the Radix Center, and allows him to focus on other initiatives of the center such as hosting school groups.

An advantage to hiring interns is that they can be offered for academic credit or experience rather than monetary compensation. Shelburne Farms takes advantage of its proximity to Burlington, Vermont, a hub for environmentally conscious college or graduate students. They offer internships through the University of Vermont (UVM) Extension that are designed to provide college credit for students and give students the opportunity to observe and learn to teach in a collaborative team in the summer camp program, adventures preschool program, and school group visits for youth ages 3-17 (Shelburne Farms 2017). Given Pitney Meadows Community Farm's distance from Saratoga Springs High School, Skidmore College, and SUNY Empire State internship programs are certainly replicable. Saratoga Springs High School has an Environmental

Science club; it would be worth gauging interest from those students in an after school or summer internship program. In exchange for their labor, high school students will have the opportunity to learn what it takes to operate a nonprofit educational farm, acquire technical farm skills such as starting, transplanting, and harvesting crops, and attend educational workshops hosted at the farm. At Skidmore College, PMCF could offer off-campus internship opportunities through the Sustainability Office, which already offers on-campus internships. Finally, seeing as SUNY Empire State has a graduate program in nonprofit management, PMCF could provide graduate students with internships tailored to give them hands-on experience in nonprofit operation.

## *2. Accessibility by Public Transport*

There is a national and global pattern of local and community food initiatives excluding certain socioeconomic groups while catering to those with high income. One means of making PMCF readily available for all community members is accessibility by public transportation. The Capital District Transportation Authority (CDTA) oversees the public bus route in Saratoga Springs – there are three routes for the city: Route 450, 451, and 452. For the purposes of PMCF creating a bus stop on Route 452 would be most ideal. Joining Route 452 would connect the farm to downtown Saratoga Springs on Broadway. Broadway could serve as a center point for communities to access transportation to the farm as other bus routes also have stops on Broadway. This opens the potential for community members who cannot directly access Route 452 to take another route that connects them to it. Moreover, Route 452 has a stop at Skidmore College. The convenience of being connected to a college campus makes partnership for potential field trips, programs, and internships more feasible.

Saratoga Springs High School is only 0.4 miles away from PMCF, about an eight-minute walk. However, in order to walk to the farm students would need to walk-along and eventually cross West Avenue. In order to make this a safe route for high schoolers, installation of a crosswalk and sidewalks or a wide shoulder is necessary. The Saratoga Springs YMCA is even closer at only 0.1 miles, or a 3-minute walk, away. The YMCA is also located on the opposite side of the street. To encourage YMCA programs to utilize the farm a crosswalk should also be installed here.

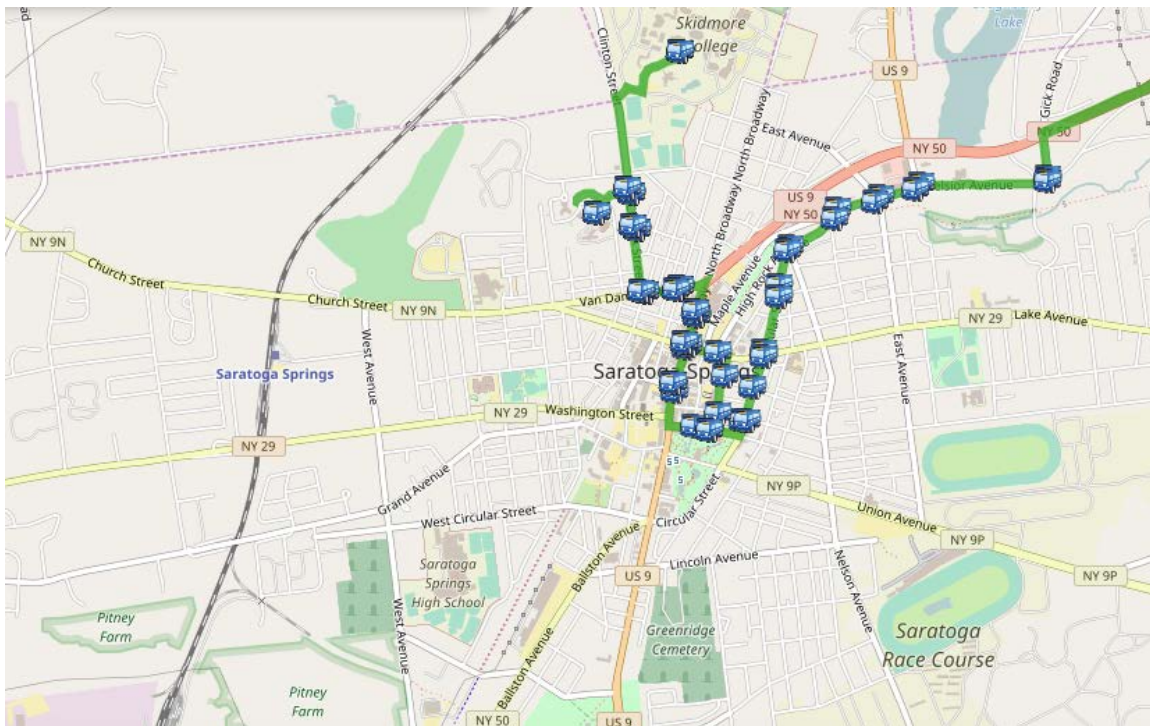


Figure 7 Aerial view of CDTA Route 452 and its proximity to PMCF, Saratoga Springs High School, and Skidmore College

### 3. Customize Curriculum

The ability to meet teacher needs, State Standards for curriculum, and student interest are key components to a successful school system partnership. Teachers feel must adhere to Common Core, Next Generation Science Standards, and any other state-specific or school-specific goals. This can make incorporating hands-on learning into the curriculum more difficult. However,

teachers are much more willing to visit places that are able to break down which learning objectives or standards different programs fulfill. When discussing potential topics that would encourage teachers to visit the farm via field trips, teachers often discussed the importance of integrating mandatory curriculum into experiential education opportunities and how that can dictate their decision making process. One 3<sup>rd</sup> grade teacher from Milton Terrace Elementary (Ballston Spa) stated that they “only clicked ‘plant life cycles’ because it can be difficult to ask permission to go on a field trip if it doesn't align with any of our standards. If that were not the case, I would have clicked all the options.”. This demonstrates the importance of PMCF to create lessons and curriculums that are flexible and can be incorporated into pre-set public school guidelines. Morris Farm, CitySprouts and other regional educational farms we interviewed discussed the importance of looking to the State standards when designing any programming or curriculum. Crafting programs that connect to state standards or having the flexibility to shift programming to match state requirements is crucial to creating a viable option for public schools.

#### *4. Training Workshops for Teachers*

As discussed in the findings, many of the educational farms offer training opportunities for educators, specifically Shelburne Farms and City Sprouts. Offering an outlet for teacher in-service training will establish the farm as not only a viable option for field trips but also as a source where teachers can fulfill service training requirements through interesting workshops. Giving teachers the option to learn skills on the farm is an excellent way to keep them bringing school groups and encourage students to pursue after school programs or camps at the farm. From the survey of Saratoga County teachers, it is clear there is a desire for such opportunities. A Ballston Spa 8<sup>th</sup> grade Science teacher discussed the option for teacher in-service training on the farm: “Through

STANYS (Science Teacher Association of New York) they construct an event called Lab day for science educators to take part in-- participants sign up for multiple workshops in a day to take part in a given lab. Could you do this, as well- utilizing local, hands-on experiences?" PMCF has an opportunity to incorporate itself into these teacher networks and act as an outlet for the desired local workshops. It is just as important to bring students to the farm as it is to provide teachers with the proper training to bring farm and environmental education into the classroom. Again, if more teachers are involved with farm-based education in-service training and find ways to incorporate the work into their daily lesson plans, the field will grow in legitimacy.

Shelburne Farms is an excellent example of a farm that provides support for their teachers. The Vermont Feed program is an excellent venue for creating opportunities and providing support to local teachers (discussed above in findings). City Sprouts also provides ten hours of annual support to each of their partner schools through their School Partnership Program (discussed in findings).

### *5. Opportunity for School Involvement*

Through the survey it is clear to see that teachers in Saratoga County are interested in partnering with or visiting PMCF in the future. The highest number of respondents were Elementary School teachers, which aligns with environmental education research that ages of children 8-11 are the most susceptible to positive behavior changing experiences in terms of environmental literacy and awareness (Stone, Barlow 2005). Therefore, it is beneficial that the highest number of responses stemmed from Elementary School teachers. Pitney has an opportunity to create programming designed for specifically elementary school aged children to capitalize on the high level of interest from the teachers in the county.



Teachers also expressed their interest in having PMCF staff do workshops in the classroom (64.4 percent of respondents). This is another opportunity for PMCF educators to engage with local schools, especially those schools that may not have the funding or flexibility to take their students to the farm-bring the farm to them. Accessibility is key in order to be a successful community farm program.

Multiple educational farms (Ambler Farm, Morris Farm, City Sprouts) stressed the importance of integrating into school systems, saying that a connection to a local school adds legitimacy to the farm education program and can boost their reputation as a reputable source for curriculum, teacher in-service training, field trips and after school programs. Pitney Farm has the unique advantage of being within walking distance of Saratoga Springs High School and could potentially develop an after school program/apprenticeship program (similar to Ambler Farms) with the High School students as well as internships with the High School and with Skidmore as discussed above.

#### *6. Workshops and Community Partnerships*

One way to successfully integrate oneself into the community is through developing partnerships with local artisans, artists and craftsmen and women to put on workshops for the farm. Part of entering a community is through creating an identity for the farm as integral to the success of others in the community. Sell local products, support local musicians, put on workshops for adults and children on the farm teaching topical skills. All are excellent ways to create a connection to the people who live and work in the community as well as foster local talent. Saratoga Springs has a wealth of people and corporations that could partner with PMCF. Scott Kellogg of Radix often travels to put on workshops, a potential option for Pitney. Local musicians could perform in

the fields and craft fairs for the community could bring people together. PMCF is already on its way to developing strong community connections but there can always be potential for more involvement.

Many of the farms we interviewed promoted local talent and put on workshops for the community. New Pond Farm brought in a local biologist to discuss the biology of porcupines. Bread and Butter Farms puts on a Weekly Burger Night which features local musicians. Through selling and promoting local artisans and putting on events for community members to participate in you will become an integral part of the community and be successful.

### *7. Memberships*

Membership programs allow community based farms to create an “inner circle” of area residents. These residents in turn feel a deeper sense of connection to your farm since they have truly bought into your program. Membership programs also offer a series of benefits to the members such as reduced prices on workshops, events and potentially CSA fees if applicable. Memberships also provide a great deal of supplemental donations on top of potential grants and larger scale donors. Shelburne Farms is a great example of success within their own membership program. Shelburne Farms has around 3,700 members from 44 states around the country. Memberships are a vital aspect of any community farm that is striving to create a core community. Many programs have tiered levels of membership programs, allowing participants to be involved as much as they want either with educational programming, CSA’s or workshops. PMCF could potentially start a membership program as a means to get more people involved in the community. Saratoga Springs already has a thriving farmer’s market, demonstrating the interest in the community.

#### *8. Opportunities for Student Advancement*

Camper or student advancement is a tactic that summer camps have employed for generations. As students or campers rise through your program you give them incrementally more responsibility each year. This structure creates a dynamic where the younger students look up to the older students. Younger students look forward to the future where they will be given more responsibility on the farm and have the trust of the farmers to implement projects independently and successfully. The advancement structure has a great deal of positive effect on retention rates. Ambler Farm and Kevin Meehan have established an effective advancement program through their apprenticeship format. Students progress from the earliest ages (5th grade) where they start by exploring and learning the basic functions of the farm, with little responsibility. By their senior year of High School these students grow up to help run Ambler's maple sugaring business, composting program and any other task that Meehan could call on them to assist with.

#### *9. Advertising*

Community based farms and farm-based education programs tend to save a great deal of money on advertising. The farms we studied make up for advertising dollars spent by being entrenched in local school system and community. Many farms that we interviewed also participate in a great deal of social media such as Facebook, Instagram and Twitter. Social media allows farms to instantaneously promote potential programs, events and workshops in a non intrusive way. Finally, the best form of advertising will always be word of mouth. PMCF must begin to cement themselves within the Saratoga community in order to spark word of mouth advertising.

#### *10. Start Small, Grow Big*

The most successful community farms started small at one point. Building a community farm is a long and involved process. In order to be successful, a common trend within the industry, and advice successful farms gave to us is to start small and grow big. Community farms tend to initially start with what they know best and know they can implement effectively. PMCF should start with one project, such as their community gardens, and make the program as successful as possible. Once the program has developed and become integral to the community, PMCF can utilize the momentum that comes from success and transfer this into planning their next programs. Once the organization has developed a reputation of excellence in one field will have the ability to expand your operation.

## **Conclusion**

In conclusion, PMCF has the opportunity to engage with a plethora of programs with a variety of stakeholders. Saratoga Springs is already an environmentally conscious city and PMCF acts as the next step in their sustainable journey and fills a gap for the city. The citizens and teachers in Saratoga County are interested and will potentially prove to be extremely useful to PMCF in terms of promotion, involvement, donations and overall retention rate. PMCF is located directly across from the Saratoga Springs High School opening up many channels of possibilities for partnerships.

Farm-based education is one effective means to creating positive behavior changing attitudes for people of all ages. Through Summer camps, workshops and teacher training, PMCF has the potential to create an extremely positive impact on the city of Saratoga Springs. PMCF must work to make their programming and opportunities on the farm inclusive to all members of the Saratoga Springs community. By making the programs affordable and transportation accessible

to the farm they can truly become a community based farm and not only cater to those who have the means to participate in the programs and drive to the farm. PMCF has the opportunity to create an outlet for all people in Saratoga Springs, they can simultaneously act as a community hub, an education center (for adults and children) and a source of fresh and local food. The data collected and recommendations proposed are just a small part of the work that PMCF still has yet to do. The organization is off to an excellent start, with passionate people and a strong mission statement and the work they will do for the community will undoubtedly be invaluable.

## **Appendix A: Survey**

### **Survey Format**

Q1 Pitney Meadows Community Farms is a new community farm opening up in Saratoga Springs with the goal of “teaching all ages of youth about food and sustainable agriculture.” Please answer the following questions to the best of your ability in order to help the farm gauge interest in future educational programming and school involvement. The survey takes approximately less than 5 minutes to complete.

Q2 What is the name of the school(s) where you currently teach:

Q3 Please select the grade level at which you currently teach:

-Pre-School

-Kindergarten

-Elementary School

-Middle School

-High School

Q4 Please list the classes that you currently teach:

Q5 Please describe a class, that if taught at Pitney Farms, would strongly influence your ability/interest in taking a field trip to the farm (If unsure please write "I don't know")

Q6 The following lesson topics are not generally taught in K-12 settings. As such, which of the following would be of interest to you and your students?

- Agro-Ecology
- Watershed health/management
- Sustainable/Organic Agriculture
- Plant Lifecycles
- Soil Health
- Food Security
- Natural Resource Management
- Healthy Eating/Nutrition
- Equitable Food Systems
- Cooking with local produce
- Gardening (propagation, harvesting, transplanting plants, seed saving, weeding, tillage)
- Permaculture
- Mushroom cultivation
- Greenhouse gardening/management

-Composting/vermicomposting

- Maple sugaring/processing

- Animal husbandry

Q7 Other

Q8 If you are interested in the aforementioned programs, but are unable to take a field trip to the farm, would you be interested in having a farm educator visit your classroom?

- Yes

-Maybe

-No

-I don't know

Q9 Please react to the following statement:

“I would be extremely interested in taking my students on a field trip to Pitney Meadows Farms to participate in experiential education, such as lessons, workshops, or service learning.”

-Strongly Disagree

-Disagree

-Somewhat Disagree

-Neither Agree nor Disagree

-Somewhat Agree

-Agree

-Strongly Agree

*Table 1 Private Schools Surveyed*

School	Location (Saratoga County)
Saratoga Waldorf	Saratoga Springs
Malta Montessori	Ballston Spa
Ambleside School of the Adirondacks	Corinth
Augustine Classical Academy	Mechanicville
The Kings School	Corinth
Mother Teresa Academy	Clifton Park
Saratoga Academy	Clifton Park
Saratoga Catholic Academy	Saratoga Springs
Spa Christian School	Ballston Spa
St Mary's School	Ballston Spa
St Clements	Saratoga Springs
Saratoga Independent School	Saratoga Springs

*Table 2 Public Schools Surveyed*



School	Location (Saratoga County)
Tanglewood elementary	South Glens Falls
Moreau elementary	South Glens Falls
Oliver W Winch Middle School	South Glens Falls
Glens Falls High School	South Glens Falls
Ballard Elementary	Gansevoort
Arongen Elementary	Clifton Park
Green Ribbon Committee Schuylerville	Schuylerville
Harrison Ave Elementary	Harrison
Ballston Spa High School	Ballston Spa
Malta Ave Elementary	Ballston Spa
Milton Terrace Elementary	Ballston Spa
Clean Technologies Early College High School	Ballston Spa
Gordon creek elementary school	Ballston Spa
Wood Road Elementary School	Ballston Spa
Saratoga Springs High School	Saratoga Springs

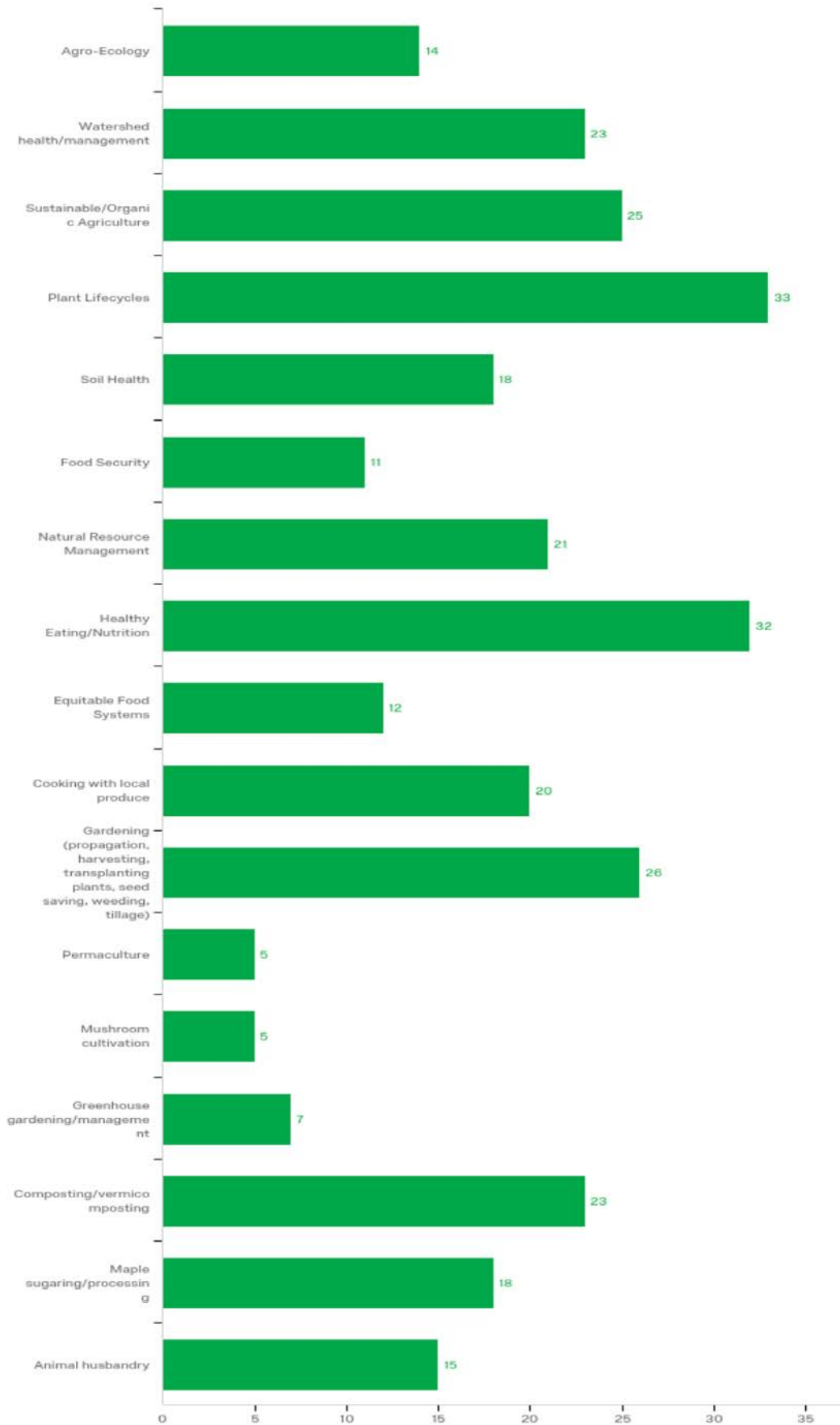
Lake Avenue Elementary School	Saratoga Springs
Dorothy Nolan	Saratoga Springs
Maple Avenue Middle School	Saratoga Springs
Division Street Elementary School	Saratoga Springs
Geyser Road Elementary School	Saratoga Springs
Caroline Street Elementary School	Saratoga Springs

*Table 3 Quotes From Saratoga County Teachers*

School	Grade Level/Subject	Quote
Wood Road Elementary	5 <sup>th</sup> Grade ELA	“I would be interested in taking a field trip to Pitney Farms. In one of the novels I read with my students the character becomes a migrant farm worker.”
Ballston Spa Middle School	Health and Special education	“Health - Show the process of farm to table (how food is grown, harvested, and sold), students are often detached from this since they simply grab food from the shelves. What habits can students acquire to be part of a sustainable food system (at home, in the stores, advocate for politically). Personal Health - Help students identify different foods and their sources (carrots come from the ground, bacon comes from a pig, eggs come from a hen); see and interact with different farm animals”

Greenfield Elementary	Kindergarten	“Many of our listening and learning core curriculum topics involve farming. At this point in time we are discussing- Taking Care of our Earth. This topic involves recycling, natural resources and composting. We also cover topics which include plant life and growth, life in colonial times and farming. Our grade level would love to visit a farm! This would be physical evidence of what we are learning.”
Ballston Spa Middle School	6 <sup>th</sup> grade Science	“Environmental science--interaction of man and nature, using our resources, how form and function of animals' anatomy tie into their environments, food webs”
Clean Technologies and Sustainable Industries Early College High School (Ballston Spa)	English	“Our students work in a problem-based environment, focusing on using technology to upgrade current solutions or develop new ones. A project that would require students to develop a new idea for farms using technology and recognizing the governmental (both local and federal) implications and restrictions might be something we would develop.”-

Ballston Spa Middle School	8 <sup>th</sup> grade Science	<p>“Please note- each of these classes could be potentially taught at/for different grade levels), Genetics- Hybrids, selective breeding and GMOs- Why or Why not? Exploring the 5 Kingdoms in our community (or further exploration of phyla/classes of any one of them), the ecology of a working farm/garden, animal behavior- we teach evolution, natural selection, integrated pest management- avoiding the use of harmful pesticides (looking at mutualism), The role of insects on a farm/ Insect life cycles/ exploring an apiary, using the maple sugaring process to teach phase changes, A big open area for star gazing? We teach astronomy. Also, it’s amazing how many students have not had a chance to interact with basic farm animals- pet them observe them, etc. Could there be a way to address this? I had several students ask if cows had fur or not, and others that could not differentiate between animals that had fur and those that had feathers. Many elementary schools are also implementing kids acquired through BOCES to teach science-- could trips/experiences coincide with and enrich these experience? Or, more importantly provide teacher training on how to best teach these ideas? Through STANYS, they construct an event called Lab day for science educators to take part in-- participants sign up for multiple workshops in a day to take part in a given lab. Could you do this, as well- utilizing local, hands-on experiences?”</p>
Maple Avenue Elementary School	5 <sup>th</sup> grade	<p>“Historical aspect of farming over the years and how it has changed in Saratoga County, importance of local farms, how students could start gardening/farming in their backyard”</p>



## **Appendix B: Interviews**

Q1: What is your name and position here at the farm/organization, and how long have you worked here?

Q2: Please walk us through a typical day at your institution.

Q3: How many full-time educators do you employ? And to what extent do you hire and rely upon seasonal educators and/or interns?

Q4: We've already looked at your educational programming online, but can you please explain a typical day of educational activities at your farm/organization during the summer, as well as the colder winter months (if applicable).

Q5: In your opinion, explain an example of one of your most effective educational programs, and why you think it's so successful, meaningful, or effective.

Q6: What is the optimal length of time for an educational program for different age groups?

Q7: How do you train your educators to be proficient in working with such a broad range of programming and groups?

Q8: Do you have volunteer or intern educators as well as paid employees?

Q9: How do you create educational programs? What is your process?

Q10: To what extent is your educational programming at the farm tied to State Standards, and do you think this matters in terms of attracting school groups?

Q11: What are the most profitable programs at your farm?

Q12: In your opinion, what are some key components of successful educational programming?

Q13: What are the best opportunities for acquiring grants to help fund the educational programs at the farm?

Q14: To what extent do you advertise the educational programming at the Farm?

Q15: To what extent do you partner with outside entities to offer special workshops for students and/or the public?

Q16: How did you draw in community support and enrollment for these programs?

Q17: Are there any charges for services at your farm, like camps, workshops, programming, that are profitable, and support future programs at your farm?

Q18: What are the greatest challenges you face?

Q19: What is your annual operating budget?

Q20: Do you have any advice for a new educational farm?

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