

Social Networking, Market and Commercialization Infrastructure for Midwestern Fruit and Vegetable Crops in Local Food Systems

Project Summary

The proliferation of interdependent local food systems within regional areas constitutes a powerful, transformative force within the U.S. economy. The resurgence of these systems is in direct response to concerns about food security and safety, climate change, and unfettered globalization. Such interconnected local food systems provide specialty crop growers, packers, processors, distributors and retailers with excellent opportunities to expand markets, commercialize technological advances, and prompt business growth.

However, considerable networking and collaboration skills will be required within and among individuals and groups if these “webbed” local food systems are to evolve and achieve their full potential. In this project, we focus on strengthening networking capacity and honing collaborative skills to prompt market expansion, technology commercialization, and business growth through local food systems that produce and deliver specialty crops in the Midwest. Furthermore, we propose to link these distributed local food systems into a robust, interstate, regional network that shares experience and learning, expedites the adoption of new technology and practices, and coordinates the supply of food from one locality to another.

The regional “web” infrastructure provides ample opportunities for experimentation and research on both technical and social dimensions. Our research will quantify: (a) market expansion, (b) uptake in technological innovation, and (c) business growth associated with specialty crop production. In addition, it will offer a qualitative methodology to evaluate networking and collaboration capabilities among Midwest regional participants.

Project Narrative

(i) Introduction.

1. Program Staff.

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2. Long-term goals, critical needs addressed, and supporting outreach and research.

Recent expansion in local food systems provides specialty crop growers, packers, processors, distributors and retailers with excellent opportunities for sustained business growth. Currently, the US is in the early stages of this expansion. However, as local food systems continue to evolve, networking and collaboration will be required at unprecedented levels both within and among localities to assure success and to scale up to meet the rapidly growing demand. This project focuses on strengthening networking capabilities and honing collaborative skills to provide critical support for businesses that focus on specialty crops, particularly fruit and vegetables, in the Midwest. Delivering this support requires attention to developing both the social and the technical dimensions of local food systems. The long-term goal of this project is to develop an interstate communications network of local 'chapters' for research, technical and business development support that results in increased specialty crop productivity, market share, and profitability. We plan to expand and test a powerful multi-state collaborative to expand markets for specialty crops and value-added food products into the full range of retail food outlets in the combined region, building the commercialization infrastructure for innovations in specialty crop production in the process.

3. *Legislatively mandated focus areas being addressed.*

This proposal is for a Regional Partnership for Innovation grant, which will provide the local and regional infrastructure needed to fully develop the commercialization and adoption of local food systems. We expect the following percentages of effort and impact:

1. Research in plant breeding, genetics, and genomics to improve crop characteristics: 0%
2. Efforts to identify and address threats from pests and diseases: 0%
3. Improve production efficiency, productivity, and profitability over the long term: 70%
4. New innovations and technology: 30%
5. Methods to prevent, detect, monitor, control, and respond to potential food safety hazards in the production and processing of specialty crops, including fresh produce: 0%

4. *How stakeholders were engaged to identify project goals and objectives and continue to be involved in the project.*

The foundations for this project have been collaboration among a wide range of organizations in each of the participating states, to be described in some detail below as context for the proposed work. Briefly, the Ohio roots of this project began with two workshops that involved a wide range of stakeholders interested in food systems and agriculture. In Michigan, The C. S. Mott Group for Sustainable Agriculture has been engaged in a wide range of projects that engage Michigan stakeholders to create opportunity for local specialty crop growers including the Michigan Food Policy Council, Youth Farmstand Project, Michigan Farmers Market Association, and Independent Development Accounts for New Farmers. During 2005, the Pennsylvania Association of Sustainable Agriculture (PASA) initiated the Regional Food Infrastructure Network (RFIN), which involved stakeholders from throughout the Pennsylvania food system in the research to identify the key areas of opportunity for building local market share. In each case, stakeholders identified a need for greatly improved networking and collaboration to build local food systems.

5. *Body of knowledge and other past activities that substantiate the need.*

Globalization evolved as the dominant economic system while fossil fuels were relatively plentiful and cheap. The recent and substantial rise in energy prices challenges that supremacy. Concerns about climate change, peak oil, and political consequences caused by dependence on fossil fuels and foreign producers have accelerated a movement towards localization as a counterbalance to globalization.

In the context of this project, localization is about people in communities within a specific region taking the best technology available and collaborating to produce and distribute their food, generate their energy, manufacture critical materials and goods, and provide attendant services. Localization does not mean isolation from the global economy. In a symbiotic interrelationship, localization establishes sustainable communities and neighborhoods wherein members may participate, individually, in the global economy yet they contribute, collectively, to their common welfare and shape their shared future within vital and vibrant local economies. Localization interweaves social and technical paths to form integrated local economic systems. This blending of the social and technical paths is a hallmark of localization.

Establishing local food systems is a critical element of successful localization. However, since WWII—the last hurrah for local food systems in the Midwest and most of the US—production agriculture has become commoditized extending beyond grains to include fresh fruits

and vegetables. It has also become increasingly globalized with fresh food production for Midwest retail and consumption moving to the South, Southwest, and outside of the United States. The Midwest has retained production of some processed vegetables such as tomatoes, potatoes, sweet corn, beans, peas and cabbage. Closing the gap to 1944-45 levels of localized food production is a formidable challenge made more difficult by the global market's provision of every type of produce every day of the year.

This gap is an opportunity. Given the universal need, value, and appreciation for food and current concerns about food access and security, building local food systems is the logical starting point for a localization strategy. Rebuilding the capability to supply the fresh fruits and vegetables needed in the region requires a human collaborative capacity that provides a foundation for all economic enterprises. The challenge of rebuilding local food systems better than before is the essence of this proposal.

6. Ongoing and recently completed significant activities related to the proposed project.

We have embarked on developing the collaborative network of people and organizations needed to build local food systems in each of the participating states. In Ohio, the networking accelerated greatly at the Leap into Local Foods Workshop, a gathering at the Ohio Department of Agriculture on February 29, 2008, that assembled people representing the Ohio food system in a stimulating dialogue (for more details and a news report on this workshop see <http://www.oardc.ohio-state.edu/amp/news.asp>). The post-workshop dialogue continues. Participants are using social networking technology to move from communication to collaboration and business development about local food systems infrastructure in Ohio.

The social networking site that was established to enhance this process is the Ohio Local Food Systems Collaborative ([OLFSC](#)). It has approximately doubled both in the number of subscribers and the number of working groups operating on the site in five months. Participants include informal groups working on specific components of Ohio food systems, commodity and non-governmental organizations, the Ohio Food Policy Advisory Council established by executive order of Governor Strickland, and a group of regional partners who are interested in bringing the same kind of networking capability to their own states. We now propose to take our collaborative networking experiences and the lessons learned so far to broader regional engagement and active participation.

Our two regional partner states for this proposal are positioned well to use social networking technology to build the commercialization infrastructure for local food systems. The C. S. Mott Group for Sustainable Food Systems at Michigan State University has explored pilot projects that will provide excellent opportunities to use social networking to build local commercialization infrastructure. The work of the Pennsylvania Association for Sustainable Agriculture in Western Pennsylvania culminated in the 2006 Regional Food Infrastructure Network study that identified, interviewed and surveyed local food chain participants to better understand challenges and solutions for stronger, more robust local food systems. This is one primary budget focus of the PASA Office in the Western Region, and the efforts will continue through the next few years.

7. Preliminary data and information pertinent to the proposed work

Growth of local food systems is limited by constraints in supply rather than demand. In the Midwest, where climate and soils permit the production of almost any food crop, very little food is both produced and consumed within a given state. According to the agricultural census,

8% of all farmers in Ohio marketed part of their agricultural output directly to the consumer in 2002, with sales of \$37.2 million representing only 0.9% of the total sales value. Most of the remaining Ohio food sales were food produced outside of Ohio. Meanwhile Ohio producers shipped most of their commodities, corn and soybeans for example, to global markets. In a state with many urban areas interspersed with productive farmland, more local market opportunities are available, particularly for specialty crop producers. According to extension specialists, some agronomic crop growers are beginning to experiment successfully with shifting their production to higher-value food crops for local markets, but the percentage is still very small. Recent research (Ernst and Darby, 2007) found strong and growing interest on the part of Ohio consumers in sourcing more of their food products locally.

Local food systems have received even greater interest as the recent rapid rise in fuel and energy costs makes transportation over large distances less economical. Fuel costs have changed so rapidly that they are not appropriately accounted for in even the most recent peer-reviewed literature. According to Rubin and Tal (2008), fuel costs can result in the equivalent of “trade tariffs”, imposed by fuel costs rather than governments. These “tariff” rates are currently estimated at over 9%, up from 3% in 2000, and will rise to 11% at an oil price of \$150/barrel, equivalent to the highest rate since the 1970’s (Rubin and Tal 2008). Oil at \$200/barrel would result in the highest “tariff” rates since before the GATT negotiations in the 1960’s. Besides potential energy savings, local food systems have been associated with a wide range of benefits including social justice (Wilkins 2005), better connection between urban and rural populations (Francis et al. 2005) and between farms and rural communities (Hultine et al. 2007), sustainable agriculture (Campbell 1997), and rural economic development (Marsden et al. 2000, Marsden and Smith 2005, Renting 2003, Ernst and Darby 2007). A study conducted in Iowa identifies considerable potential increases in net economic benefits that would result from an increase of local fruit and vegetable production and marketing (Swenson 2006). Other studies have shown the positive impact of farmers markets on local businesses and communities by attracting customers, who, when visiting the markets, also spend money in the local communities (Brown 2002, Otto and Varner 2005). According to Gale (1997, p. 25), “direct marketing may also contribute to rural development by supporting diversity in the farm sector, offering an alternative source of income for small farms, organic farms, and other alternative farms that in turn support rural businesses.” Furthermore, by helping farmers stay in business, farmers’ markets indirectly contribute to the preservation of open space and farmland (Brown 2002). Using input-output analysis, Conner et al. (In press) estimated almost 2,000 additional jobs and \$200 million in new income could be created in Michigan by shifting consumption to seasonally available Michigan produce, substantial impacts resulting from specialty crops in local food systems.

Diversity in farm enterprises provides economic benefits; the biological diversity associated with more diverse farming systems can lead to ecological benefits. In fact, the environmental benefits should be connected with dietary and health benefits in a holistic approach to a sustainable food system (Hamm, In press). Multifunctional agriculture is a term used to describe the combination of environmental, social and economic benefits that can accrue from diversifying agriculture. In their U.S. study, Boody et al. (2005) documented environmental benefits in improved water quality, fish health, carbon sequestration and reduced greenhouse gas emissions. Proposed mechanisms and the specific ecosystem services that are enhanced vary somewhat among studies. The ecological literature has documented a convincing case for greater biomass production resulting from plant diversity (Cardinale et al. 2007). One mechanism is more efficient use of natural resources through increased nutrient cycling (Carrol

et al. 1990). But diverse crop mixtures also have been associated with reduced losses to pests and diseases (Hajjar et al. 2008, Holling et al. 1995, Folke et al. 1996), and maintenance of an even wider range of ecosystem services including pollination, soil nutrient processes, and carbon sequestration (Hajjar et al. 2008). Regardless of the mechanisms, the net result of crop diversity is resilience and sustainability in agroecosystems (Collins and Hawtin 1999). Based on this body of evidence in the literature, we use a measure of biodiversity as one of six key natural/physical and social/economic variables describing agroecosystem health (Vadrevu et al. 2008). Returning to the impact of the ecological conditions on the economics of farming, ecosystem services afforded by greater crop diversity lead to economies of scope rather than economies of scale. Farmers who seek reduced input costs rely on these ecosystem services, and have been called “economical farmers” (Van der Ploeg 2000). One aspect of “economical farming” is seeking improved prices in local markets (Van der Ploeg 2000).

Rising interest in local food systems can be attributed to the continuous pressure on farm incomes in global commodity chains (Renting et al. 2003). Rising farm production costs, and increasing processing and marketing expenses have cut the share of the food dollar accruing to U.S. farmers from 41% in 1950 to 19.5% in 2006¹. This is in part due to the growth of further processing and merchandising and a resulting increase in market power of wholesalers and retailers in the global food system. Gubanova et al. (2007) showed for the organic fresh produce sector that wholesalers’ market power increased, as manifested by increasing price markups between 1995 and 2003. Given that competition in global commodity markets is based on low-cost production, farmers need to invest continuously in the newest technology and exploit scale economies to stay competitive (Renting et al. 2003). This ‘technological treadmill’ is particularly devastating for smaller farms that cannot produce enough to offset large capital investments. Increasingly, such farmers are looking for alternatives to the commodity system in diverse and multifunctional forms of agriculture and innovative marketing strategies that connect them with the local community and restore the economic viability of their farm operations (Renting et al. 2003). As a result of the developments in global value chains, a growing number of organic produce growers expressed in the Fourth National Organic Farmers’ Survey that they plan to increase their direct marketing activities (Walz 2004).

Intuitively, shipping food over large distances, as practiced in the global food system, should be less efficient than transporting food short distances to market. However, this assumption needs careful examination. In one of the few studies examining this question, little difference between a local farmers market in Sweden and the conventional international distribution system is found (Wallgren 2006). For fresh produce and vegetables, however, transport-related energy costs are found to be significantly lower in the local market system (Wallgren 2006, Pirog et al. 2001). Furthermore, Wallgren (2006) points out that there is “considerable potential to increase energy efficiency in local food systems by organizing the selling in new ways and by using more energy efficient vehicles.” While farmers’ markets draw most of their customers from the adjacent neighborhood, research has found that farmers travel approximately 20 miles on the average to markets. However, the distance can range from 1 mile to 70 miles, indicating large differences in transaction costs (Brown 2002). Although farmers generally seem to be aware of the existence of these costs, they often fail to consider them in their profitability calculations (Walter et al. 2007). Reducing these costs will require developing new energy efficient, and scale appropriate infrastructure for local food systems. Developing this infrastructure will require the collaboration that is the focus of this proposal.

¹ <http://www.ers.usda.gov/Data/FarmToConsumer/Data/marketingbilltable1.htm>

(ii) Rationale and Significance.

Redevelopment of local food systems is an immediate opportunity for the US economy to respond to current challenges in the realm of energy and the environment, and present both a compliment and counterbalance to global food systems. Likewise, all indications are that consumer demand supports a trend toward more locally produced foods and foods identified with attributes friendly to environment, economy and personal health. For the Midwest in particular, fresh fruits and vegetables are supply-limited in local markets, offering substantial opportunities for producers. To be successful, however, local food systems must function holistically, their participants must contribute effectively in each system, and they must function interdependently in cohesive regional food systems. This requires attention to system design, learning new social skills featuring the most advanced communication technology available, collaboration, and developing technical skills in local food production, along with such allied capabilities as renewable energy production and green building methods. The challenge addressed by the proposed project is designing venues, processes, and tools that engage a critical mass of people in hands-on training and practical experiences and further develop their skills in these essential social and technical competencies. Practical experiences will be offered by conducting food system building pilot projects at a range of geographic scales from neighborhood to regional. The specific objectives of each pilot project will engage specialty crops producers with other participants in a local food system to build networking and collaboration capabilities that can be applied to creating additional market opportunities.

Our dual emphasis on both the social and the technical dimensions of local food systems dictates the following outreach and research objectives:

Outreach objectives: To meet the localization goals and objectives outlined above requires a strong portfolio of tools and techniques covering virtual and face-to-face communications. The outreach objective of the proposal is an information and communication process that draws upon websites, email, phone, personal interviews, small group sessions, and large-scale conferences to convene people around localized agendas that are immediately relevant and meaningful to building collaborations around technology innovation and specialty crops production and marketing.

Application of moderation skills engages broad stakeholder groups in online communication about local food systems. Venues, like the [Ohio Local Food Systems Collaborative](#) (OLFSC), allow participants to work openly and in parallel; deepen their understanding of one another; build trust in each other; downplay internal competitiveness; envision preferred futures worth having; and move towards collaboration within their particular neighborhoods, across clusters of multiple communities, or on a regional scale encompassing the Midwest and beyond.

Tactically, communities such as those initiated by the OLFSC contribute to a steady stream of observations, ideas, and insights from which viable community and business plans are developed with focus on specific outcomes in building local food system infrastructure. Projects are chartered, rampant experimentation occurs in multiple locations concurrently, and adjustments are made for future actions to maintain the integrity of the original vision of healthy, vibrant local economies throughout the region.

Research objectives: Research will be conducted in concert with outreach efforts to support development of local food system infrastructure through documentation and analysis of network development, function and accomplishment in building local food system infrastructure;

examining the role and adoption of various communication technologies; analyzing the adaptation of communication and collaboration styles by various participants in the supply chain from producer to consumer; measuring the effect of these technologies and processes on customer and producer satisfaction in direct business transactions; and assisting producers with navigating the market channels that networks could open for specialty crops and associated technology innovation.

(iii) Approach.

1. *Description of the activities proposed, key personnel or institution roles in those activities, and the sequence in which the activities are to be performed.*

Local, State, Regional network building:

The Ohio experience started with a statewide workshop, providing many involved with Ohio food systems the opportunity to begin relationships and then carry them forward using online communication and collaboration. We propose such a statewide meeting in each of the participating states, as a means of providing the initial nucleus of a food systems collaboration. The statewide meeting should include the best representation possible of the food system from producers to retail and with the goal of all relevant private commercial, government and non-government organizations represented. The state level meetings will be organized by the co-PI's from each state, with facilitation and meeting costs funded by the project. The goal of each of these state level meetings will be to develop and further the relationships between key participants in the state food system, organize working groups around the key areas of need as judged by the participants, and move the communication between participants and within each working group into a social networking system that is supported by multiple technologies. The meeting will be a success when new relationships have been developed along the food supply chain within each state, starting with specialty crops producers. These relationships are expected to provide enough value to maintain an ongoing virtual dialogue that evolves into local business establishment and growth.

Moving the communication within a statewide network into online communication and eventually collaboration will require ongoing support and facilitation. Initially, assistance with use of social networking websites, and specifically how to post messages, add attachments and other resources, target messages to specific groups, and develop/structure online dialogue, will be provided to the community by the project. As the community, or a critical mass within the community, becomes conversant with the technology, additional support and examples help move the communication from thoughts and ideas to more purposeful development of ideas and then business plans and project proposals. Because the open source development of business plans and proposals is a very different way of operating than the vast majority of participants will have experienced, the examples and coaching by facilitators will be critical in building the confidence and capability to take advantage of the open source mode of development. The success of this networking will be apparent when new subscribers are joining regularly because of the content of the communications taking place, and when the communication clearly is "in the flow" of the work of participants enabling specific action steps to be taken by the group.

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Pilot projects, selected from among the ongoing efforts of regional collaborators will be offered to provide substance to the networking and specific examples of collaboration, which can be applied to other food system-building projects. Criteria for choosing these projects include the potential to: (a) open new growing locations for specialty crop production; (b) increase productivity through improved specialty crop production and/or distribution in distributed operations at a range of scales; (c) introduce technological innovation into the production, distribution and processing phases to reduce distance traveled, energy requirements, and fossil fuel consumption; (d) expand market opportunities for specialty crops and the associated technological innovations; (e) foster a network among diverse groups needed to implement the project; (f) provide a capacity for scaling from neighborhoods and communities to cities and counties and ultimately to interstate regions; and, (g) demonstrate an initial interest in the project among our stakeholder communities. For each project, we will conduct an iteration of the network building process: a workshop for key stakeholders around the project goals, support for the ongoing communication within the working group or groups needed to implement the project, coaching the network toward business plans and action steps. Pilot projects, to be described in detail below, include:

- Establishing local fruit and vegetable sales at gas station/convenience store sites in rural "food deserts" (multiple-county regions);
- Connecting youth-serving organizations to embrace fruit and vegetable production, marketing, preparation, and policy education and activities, stimulating specialty crops-based entrepreneurship among young people (cities and large towns);
- Establishing neighborhood level specialty crop production homeowner services to grow and provide crops within participating neighborhoods (neighborhoods within municipalities);

Once networks have been established and coached toward collaboration and business development at a range of geographic scales, the project team will work on connecting these various scales together throughout the multi-state region. Local food systems generally do not supply all food required within a locality. Any locality, however, may have an overabundance of certain food items at certain times (zucchini, for example) or may produce items not easily produced elsewhere. Therefore, networking among food systems across a range of scales is required to match supply and demand at optimal levels and maximize opportunities for specialty crops producers throughout a region. Just as networking is needed to develop food system infrastructure within a locality, it is needed to connect localities for regional collaboration. Building this regional network will begin with a regional meeting of network leaders and managers, to collaboratively develop the regional networking approach and needed support, drawing upon the experience within multiple states in the region. Based on the outcomes of this regional network design meeting, the regional team will build the new technical capabilities needed for the additional level of networking and coach the more localized networks on scaling up to the regional level. Complimentary and supporting research will be conducted to support the growing networks, with the primary goal of improving network function and connectivity and creating opportunities for specialty crop growers to market their products. Ultimately, the goal is to expand and test a powerful multi-state collaborative to market specialty crops and value added food products into the full range of retail food outlets in the combined region, building the commercialization infrastructure for innovations in specialty crop production in the process.

2. *Methods*

Research and Outreach work:

This project focuses strongly on outreach based on our recent experience, research and capabilities across the participating states. The network building will proceed systematically from the state level to initiate a food systems collaboration, to local projects that focus and demonstrate purposeful networking, to business development in local food systems as the outcome of this collaboration, and finally to regional network building. In this section, we will describe the outreach efforts needed to accomplish this progression first. Research objectives in this proposal will be accomplished in concert with the outreach efforts through participant surveys, web-based data on social networking site use, market surveys, etc. The research will document and illuminate the dynamics of network progression from communication to collaboration and market impacts for specialty crop producers as the networking is developed at the various geographic scales and through the various specific pilot projects. We will describe first the outreach activities and then a summary of the research objectives, the project participants that will carry them out, and how they fit into the outreach activities.

We will proceed according to the following protocol for the pathway from communication to collaboration at each level in a hierarchical approach, from local to regional, in building food systems networks. This protocol is based on our experience with the Ohio Local Food Systems Collaborative and is consistent with published methodology for successfully building and maintaining collaborative networks (Vandeventer, 2007). We expect each iteration of the process described to take about 9-12 months. As described above, we will begin at the state level in year one, move to the local level in year two and build business capabilities and connect them at the regional level in year 3. In Ohio, we will have completed or nearly completed the work at the state level by the time this project would be initiated. Michigan participants have already done some of the groundwork on local level pilot projects. PASA has conducted a detailed networking project that places Pennsylvania in an excellent position to boost the networks they've initiated with an infusion of social networking technology and facilitation. This preparatory work will be outlined in more detail below to provide context for the proposed work.

The Ohio part of this project began at the 1st Annual Stinner Summit, September 2007, Coshocton, OH, a gathering funded by the Ben Stinner Endowment for Healthy Agroecosystems and Sustainable Communities. The objective of the Summit is to select one project to which all participants, a wide range of stakeholders interested in the goals of the endowment, are willing to contribute. The project selected for 2007-2008 was a workshop on building local food systems infrastructure. The organizing committee for the workshop approved establishment of a social networking site to continue the networking after the workshop. The Leap into Local Foods workshop was held on February 29, 2008, at the Ohio Department of Agriculture in Reynoldsburg, OH. The network established that day has continued to grow with open access for the diverse stakeholder community involved with local food systems in Ohio and beyond.

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The networking takes place through working groups, one of which is a Regional and National Partners group.

In Michigan, The C. S. Mott Group for Sustainable Agriculture has been engaged in a wide range of projects that simultaneously improve agricultural and food systems by connecting them holistically. Some initial networking efforts include establishment of listservs for various topics related to specialty crops and community food systems. A FoodSpeak listserv was created to link 11 local food systems efforts several years ago and has continued past the original project. An Organic Farming listserv is active and growing. A Michigan Farmers Market Listserv currently boasts about 425 members and provides a forum for questions and opinions on many aspects of farmers markets. Informal communications among groups that have conducted Youth Farm Stand projects coordinated by the Mott Group and Mott Group interviews with national leaders of youth-serving organizations helped to focus that need for a broader Youth Community Food Network to engage the specialty crop farmers and handlers of tomorrow. Projects that utilize emerging social networking technology to enhance these initial efforts will create and enhance opportunities for Michigan specialty crop growers to market more locally and increase profits.

During 2005, the Pennsylvania Association of Sustainable Agriculture (PASA) initiated the Regional Food Infrastructure Network (RFIN), which covers the Western nineteen counties of Pennsylvania. The RFIN project was chartered as the result of an intensive survey funded by Pennsylvania's Commonwealth Financing Agency early in 2005. Stakeholders from throughout the Pennsylvania food system were included in the research to identify the key areas of opportunity for building local market share. In 2007, the data analysis identified more than 20 potential solutions to begin strengthening food systems including specific projects in: education, opening sales channels, distribution, business partnerships, workforce development, tourism, and communications. To date, almost all of those solutions are being planned and/or implemented by groups throughout western Pennsylvania. The continued strength in communications, coordination and support that is maintained, and enhanced is the primary focus of PASA's efforts for the near future. PASA will serve as an excellent resource for the project team to relate the results of the 2 year study that initiated RFIN to other studies conducted during the project. PASA's statistically significant data can act as a control or comparison dataset for the studies conducted in other regions. PASA's ongoing outreach efforts include focus on an interactive website which generates an on-demand local printed 'newspaper' of relevant site updates, discussions, members advertisements, events and classifieds. A large editorial section will be included to ensure that even farmers without web access can participate in the network. Quarterly meetings will be held at local agricultural gatherings such as Grange, Farm Bureau, unions, co-ops and associations.

Throughout each of these projects, there has been some initial collaboration across state borders. For example, several executives from Giant Eagle, based in Pittsburgh, PA, attended the local foods workshop in Reynoldsburg, OH. Cheryl Danley of the C. S. Mott Group at MSU also was one of the early subscribers to the Ohio local food systems collaborative website. The Mott Group's work has included growers in Northwest Ohio, particularly in the greenhouse crops industry. In addition, joint OSU-MSU educational programs about producing and marketing local pork were conducted for Ohio and Michigan producers. One such project identified consumer interests and genetic needs in the preservation of specialized meats produced locally from heritage breeds of pigs. This resulted from the collaboration of a Michigan State

animal scientist with an Ohio State agricultural economist. OSU and MSU share an extension specialist in specialty crops in Northwest Ohio and Southern Michigan, facilitating such cross-border efforts. Research on information technology use by produce growers and food retailers who are part of local food systems has been coordinated between Ohio and West Virginia, a future partner for this regional collaboration.

Based on the varying histories of work in each state, we expect variation in the pace of this progression across the participating states, and this variation will provide further opportunities for comparative research on network development and impact. The protocol described below, therefore, is generalized and will be adapted to take advantage of preliminary work done in each state, locality and specialty crops business community.

Network initiation protocol:

1. Communicate the purpose clearly to the stakeholder community involved with food systems: build local food system infrastructure to get fruit and vegetable crops from producer to consumer within neighborhoods, communities, and within states;
2. Organize a workshop for these stakeholders;
2. Establish a social networking site during the workshop, using the face-to-face meeting to form working groups around key infrastructure needs (for example, value-added processing, post-harvest refrigeration and storage, transportation logistics);
3. As part of this meeting, information technology “optimism” measurements will be taken following methods used in previous research (Ernst & Tucker, 2001; Ernst, Stoel & Tucker, 2006) to identify participants’ comfort with use of networked technologies for project and business development. This initial measurement will provide a baseline against which changes in optimism and comfort measured in subsequent meetings can be used to evaluate the effectiveness of network building and project development. Networking activity is likely to build slowly after the workshop as participants negotiate the hurdle of new technology. Findings will guide additional training in communication skills and implementation. To further accelerate this process, the project team will generate posts that maintain interest, refer to ideas and insights from the workshop, etc. to encourage reading and response;
4. Provide examples of useful, purposeful, communication;
 - Questions answered
 - Current events and research shared
 - Additional face-to-face, phone conference meetings organized
 - Ideas for business plans posted, etc.
5. Provide a carefully constructed example of moving from ideas to business plans;
 - Idea post(s) to introduce the rationale;
 - Supporting comments, responses, additional posts to direct attention;
 - Business plan post and offer to collaborate (OLFSC currently at this step).
6. Stimulate and facilitate adaptation, modification, replication.
7. To ensure that the learning is systematically captured and shared, educational materials and a social networking curriculum will be developed, disseminated and recursively evaluated over the duration of the project. Evaluation will be primarily formative so that the curriculum can be improved as it is being used. Through this process we expect to be able to readily develop and adapt curricular modules for a variety of regional audiences and interest groups.

Project Narrative

Curricular content. The curriculum will draw from lessons being learned by local food systems developers, researchers, and extension agents and will feature networking issues, tools, and processes directly tied to issues and opportunities in the development of local food systems and implementation of green technologies. We anticipate a set of modules, a few of which would be completed first to ensure a modicum of group cohesion and like-mindedness and the majority then accessible in any order according to user interest and need. The overall goal is to enhance the abilities of various groups to develop and manage local food systems efforts and to communicate effectively with each other. In effect, the curriculum is a live entity that stimulates, captures, and disseminates learning in continuous and self-reinforcing cycles.

Curricular delivery. The curriculum will be made available in three related formats: on line, by live sessions brought to groups by the core developers, and a series of open workshops that people can attend. A curricular monograph will be created on line; it will contain materials, notes on delivery processes, and evaluation instruments.

Curriculum coordinator. The curriculum would be developed and overseen by Dr. Ross MacDonald, former Director of the innovative Program in Science and Society in the College of Agricultural and Environmental Sciences at the University of California at Davis. Key to the curricular development is the inclusion of multiple disciplinary and experiential perspectives.

Throughout this process, we will seek continuous feedback on the social networking site and other technology used to ensure that it functions as intended, making improvements in site features as they are identified.

Pennsylvania Statewide Network Workshop

PASA, with assistance and support from Penn State cooperators, will organize and host a statewide local foods summit in year 1. This summit will draw together, for the first time, the organizations with interests in agricultural entrepreneurship, value-added agricultural production, economic development, food security, land use planning, and agricultural sustainability. Additional organizations initially identified to be represented include: Delaware Valley Regional Planning Commission, Food Trust, Fair Food, White Dog Foundation, Sustainable Pittsburgh, Pennsylvania Women's Agricultural Network, Slow Food, Buy Fresh Buy Local, Pennsylvania Department of Agriculture, Pennsylvania Fruit and Vegetable Growers, Pennsylvania Retail Farm Market Association, and Keystone Cooperative Center. Additional organizations and individuals have been identified through the RFIN project described above.

The Ohio Leap into Local Foods Workshop and resulting network development will serve as a template for the Pennsylvania Local Food Summit. The RFIN project has already laid the groundwork for developing statewide and regional networks that will lead to increased capacity for local foods development. These networks could link farmers, consumers, nonprofit and for-profit organizations, and educational and governmental institutions. These networks could also increase information flow and leverage resources to develop projects that:

- Improve the ability of farmers to produce for local markets;
- Increase access to and affordability of local foods for consumers, particularly low-income consumers or those facing nutritional deficits;

Project Narrative

- Develop local agricultural infrastructure for developing value-added products from local sources;
- Increase educational resources for linking elements of the local food chain;
- Develop and commercialize transportation and distribution systems for locally-sourced products;
- Create and heighten awareness of business opportunities in the local food system; and
- Offer research opportunities to examine the development of the networks and their impact on local agricultural development, consumer choice, economic and social well-being.

Following the Pennsylvania Local Food Summit, the team working on this project will continue to develop the network and foster its growth and reach. Specifically, the PA project team led by PASA will:

- facilitate additional meetings of network participants, as working or regional teams;
- moderate the on-line network, provide administrative oversight, and ongoing support after this project concludes;
- provide marketing and information resources related to the statewide and regional work teams;
- continue to publicize the network and the on-line collaboration tools;
- work toward making the individual efforts sustainable beyond the grant period.

Activities since the completion of the initial RFIN study in 2007 include: education in local food marketing and technical assistance in business/market planning; development of sales channels in retail outlets, direct and farm market sales, indoor markets, refrigerated sales venues, and virtual stores; distribution infrastructure; partnerships for branding, marketing, business planning, succession, cooperatives; regional communications networks; workforce development; and agritourism. PASA has already committed staff to this extensive list of projects that can provide focus to networking efforts. Therefore, Pennsylvania networking efforts will focus on the existing activities described above rather than participating in the pilot projects on youth engagement and convenience store outlets described below for Michigan and Ohio. The workshops and facilitation selected for these projects will be chosen by stakeholder partners in the ongoing RFIN project.

Michigan Statewide Network Workshop

The C. S. Mott Group for Sustainable Agriculture at Michigan State University will develop a Michigan community food systems summit to bring together organizations with interests in food systems as described above. Organizations to be invited will include: MSU Extension, MSU Student Organic Farm, Michigan Food and Farming Systems, Michigan Farm Bureau, Michigan Farmers Market Association, Michigan Farm Market and Agritourism Association, Michigan Department of Agriculture, Michigan Land Use Institute, Michigan Organic Food and Farm Alliance, Detroit Agricultural Network. Increased information flow and resources leveraged will be expected to lead to results similar to those described for PA and OH as described above. The Mott Group has already done some groundwork and is ready to mobilize a statewide network to launch two specific local demonstration projects that will serve as models for OH and PA as well.

Youth Community Food Initiative: A Pilot Locality-based Social Network Building Venture

Since 2005, the C.S. Mott Group for Sustainable Food Systems at Michigan State University (Mott Group) through the Michigan Youth Farm Stand Project (MYFSP) has developed and connected youth and community food initiatives across the state with a focus on growing fresh vegetables and marketing them to customers in lower income neighborhoods. . One valuable outcome has been the development of social capital among people involved in these initiatives. The accumulation of this capital and connections carries the potential to further develop a network that can foster the growth, strength, and statewide impact of a wide range of Michigan youth community food projects in Michigan. Further, it has led to a vision of the potential to develop a Michigan Youth Community Food Network as a structure for resource sharing, advocacy, education and coalition building. Such a network would include not only those organizations already promoting food citizenship for youth but would also reach out to Michigan's major youth-serving organizations to encourage their greater involvement in efforts that engage youth with the food systems in which they live. This is important because re-localization of food systems and development of specialty crop local marketing efforts will require engagement of the next generation of specialty crop growers and handlers. Similar interest in youth engagement has emerged in the Agricultural Viability Task Force of the Ohio Food Policy Advisory Council. Therefore, this pilot demonstration project will be implemented in Ohio as well as Michigan.

Pilot Project Objectives:

We propose to explore the inputs, support, and capacity required to create local, state and regional networks of individuals and organizations that share the common value of involving youth in community food systems. This networking could facilitate and enhance ties among network participants in ways that allow for knowledge sharing and social capital building that empowers, enhances, promotes, and sustains youth involvement in community food and agriculture systems to positively impact health and community development.

The specific goals of this project include:

1. Support public school and college-age youth engagement and leadership development in community food system initiatives across Ohio and Michigan with educational resources, links to models, tools, and funding sources.
2. Network local initiatives across the state to create interconnected and supportive collaborations and information sharing.
3. Represent youth in community food systems with a collective voice, ensuring that local youth initiatives can be heard and engaged in policy at the state and local levels.
4. Build youth understanding of the complexity of local food systems and the synergy and conflicts that may exist simultaneously in a local/global food economy.

Direction and Development:

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This initiative will require the following:

- An advisory board comprised of representatives of local youth community food system initiatives, including urban and rural youth/food nonprofits. For Michigan this group could include: *Growing Hope*, (Ypsilanti), *Greening of Detroit*, and *Mixed Greens* (Grand Rapids); Michigan State University, University of Michigan, Wayne State University, and Saginaw Valley University; other youth-serving organizations such as 4-H, Boys and Girls Clubs, and Junior Achievement; and youth themselves. For Ohio, the group could include a similar range of organizations such as CityFresh (Cleveland), LocalMatters (Columbus), Crown Point Farm and Education Center, Ohio State University, OSU Extension, and the OSU Agricultural and Technical Institute, the many public and private colleges with programs involving food systems (for example the Rural Life Center at Kenyon College, George Jones Farm, Oberlin College), the Cuyahoga Valley Countryside Conservancy, Ohio Dept. of Education, and others. These boards would guide network development within each state.
- Identify and interview/survey organizations focused on food and/or youth to 1) learn about the organization's current work with youth and community food systems; 2) identify stakes/interest in a network concept; and 3) explore opportunities for connections. For Michigan, organizations may include: Michigan Food and Farming Systems (MIFFS), Michigan Organic Food and Farm Alliance (MOFFA), Michigan Farmers Market Association (MIFMA), MSU Student Organic Farm (SOF), American Community Gardening Association (ACGA), Michigan Nutrition Network (MNN), Federal and state funding entities, national, state and local foundations with food and/or youth, as priorities, 4H Youth Development, Scouts, Junior Achievement, Boys and Girls Clubs, , Faith Based Organizations, Community Development Organizations, Rural Development Organizations, Michigan Department of Education. For Ohio, organizations may include : Ohio Ecological Food and Farming Association (OEFFA), Inovative Farmers of Ohio (IFO), Ohio Farm Bureau Federation (OFBF), Ohio Produce Growers and Marketers Association (OPGMA), Ohio Master Gardeners (Coordinated by OSU Extension), YMCA/YWCA (existing youth gardening programs in place through CityFresh, Cleveland), 4H Youth Development, Scouts, Junior Achievement, Boys and Girls Clubs, Ohio Department of Education, other Federal and state funding entities, foundations with food and/or youth, as priorities (such as Farm to School).
- Identify specific outcomes for a social network based on stakeholders' interests. What would stakeholders expect to accomplish for their commitment of time and energy? Some possibilities include:
 - Increased food citizenship among Michigan youth.
 - Enhanced youth participation and visibility within food policy discussions at local and state levels
 - Greater visibility of food issues within programs of major youth-serving organizations
 - Greater youth awareness of and interest in food related careers
 - Enhance economic and business literacy by training youth participating in local food marketing efforts
 - Increased linkages between rural and urban youth

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- Identify possible network structure and functions to reach these outcomes. Some possibilities may include:
 - Online “home base” website with downloadable resources and links
 - Leadership/facilitation of statewide/regional workshops on pertinent topics
 - List serve, e-newsletters and networking tools, like YOUTHGROW or Community Connexx
 - Representation and advocacy for youth & community food issues at the State policy level, and supportive advocacy for youth & community food issues at the local level
 - Resource clearinghouse: Research, gather, and maintain up to date resource directories for books, manuals, articles, news, websites and other information sources.
 - Research and provide annually updated lists of funding resources available to youth and community agriculture projects and initiatives.
 - Engage in participatory community based research to contribute to the statewide body of knowledge on issues and approaches in youth and community agriculture.
 - Offer supportive services, such as project evaluation, grant writing support, etc
 - Bridge with other “New Farmer” supports, such as individual development accounts, business and young entrepreneur training and programs.
 - Provide ongoing business advice, management and market development coaching for youth participating in local food ventures.

Following the generalized network development protocol described above at the state level, these youth-based networks will be built at more localized scales. The general process is the same however: Establish and communicate the purpose clearly to the stakeholder community involved, establish social networking tools, using a face-to-face meeting to form working groups around key needs and goals, take initial information technology “optimism” measurements, concentrate on providing examples of useful, purposeful, communication after the workshop, coach the group using carefully constructed examples of moving from ideas to business plans, stimulate and facilitate the outcomes and associated business plans identified by the participants. As part of the overall process, the lessons in social networking to build local food systems coming from these efforts will be included in the growing curriculum. Lessons from this pilot project are likely to provide excellent opportunities for inclusion in high school and technical school business courses, bringing food systems and specialty crops into the public education system.

Fresh Produce Filling Stations: A Pilot Business-building Social Network Venture

Background:

West Central lower Michigan doesn’t look like a desert, but it is – a food desert. Counties that comprise District Health Department #10 (DHD 10) – Crawford, Kalkaska, Lake, Manistee, Mason, Mecosta, Missaukee, Newaygo, Oceana and Wexford – are rural in nature. The area is a popular retirement home location for modest income senior citizens, with household income lower than the Michigan average. With petroleum prices rising precipitously, securing an adequate diet is even more challenging. At the same time, parts of the area encompass significant vegetable and fruit production going mostly to processing. A very limited amount of local vegetable and fruit production enters local food distribution channels. Many health

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department clients indicate that they typically shop for food not at supermarkets but at convenience stores associated with two area gas station chains, Blarney Castle and Wesco.

Project objectives:

DHD 10, working with the Michigan Department of Community Health, has approached Blarney Castle and Westco gas station/convenience store chains to explore opportunities to add fresh, locally-grown fruits and vegetables to their current convenience store products in selected locations within the district. Initial responses were positive and some work is underway in 2008 in one Blarney Castle location.

We propose to expand and deepen these initial efforts and to develop a regional network that involves selected Blarney Castle and Wesco convenience stores, Michigan local fruit and vegetable growers, and similar combinations of outlets and producers in Ohio. Intended outcomes include: 1) introduction of local fruit and vegetable growers to direct marketing, 2) creation of a local supply chain/produce distribution network with fuel efficient infrastructure, and 3) strengthening of linkages among local residents and farmers. Much of Ohio and Michigan's fruits and vegetables have traditionally been marketed to processors. Diverting some part of this production to local markets via direct marketing and selling to area retailers offers potential for increased prices and offsets losses from less available and less lucrative processing contracts. It would also help the area's agriculture develop its image as supporting the good health of areas residents by improving their access to its health-promoting products.

Preliminary discussion with participants in the initial 2008 effort indicate that developing and maintaining relationships may be one of the critical aspects of making this new marketing arrangement function. Key decision makers at the center of the two companies indicated their support to cooperate, but company policies and decisions required at multiple levels complicated and delayed activities.

Direction and Development:

The following set of activities will be needed to launch this pilot project in Michigan and Ohio:

- Review initial 2008 efforts to distill lessons and clarify needs
- Clarify corporate interests in/objectives for participation
- Understand corporate policies, organizational structures, decision making protocols
- Understand area, store management incentives and barriers for participation
- Determine farmer participation interest
- Adapt for use in this project MSU-developed materials for implementing farmer sales to schools (to be available on line 9/15/2008)
- Incorporate fresh fruit and vegetables in three locations per state during 2009
- Use Rapid Market Assessments to survey customers; interview farmers, store managers involved.
- Develop and implement a business evaluation plan to answer questions related to the economic viability of this effort from both a retail outlet and farm level. Calculate economic impact on the producer, firm, and community from making fresh produce available locally. All players in this supply chain must experience financial advantages in addition to social capital gains by improving local health. Additional evaluation might examine potential development of localized distribution intermediaries.

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As described for the youth-based pilot project, we will follow the generalized network development protocol described above at the state level, to build the producer-retailer networks in this project at more localized scales. The business plans associated with the new marketing channels and distribution infrastructure will be a primary focus of the networking and the desired outcomes. Again, the lessons in social networking to build local food systems coming from these efforts, in this case likely targeting small business owners and producers, will be included in the growing curriculum.

Neighborhood Revitalization through Specialty Crop Production: A Pilot Business-building Social Network Venture

Background:

The first commercial venture to emerge from the Ohio Local Food Systems Collaborative was a business that seeks to establish specialty crop production at the most local level, the neighborhood. Called “Greener Acres” (<http://socialsynergyweb.org/oardc/greener-acres>), the business is rapidly establishing in the Columbus area and has attracted the attention of the Columbus Mayor’s office for its potential to revitalize urban neighborhoods. The project team is currently exploring contracts with the Columbus Dept. of Development for such projects. The goal of the business is to establish an openly collaborative forum wherein participants:

- Advance ideas for new or expanded businesses within local food systems among communities and neighborhoods in the Columbus, Ohio area
- Develop business plans for the more opportunistic entries in the idea portfolio
- Act upon those business plans that show high value in terms of customer benefit, social responsibility, financial return, and managed risk
- Contribute to a growing, dynamic, and networked information and knowledge "web" that captures learning experiences from ventures underway and makes them readily available for subsequent endeavors
- Adapt what works well and what works better to a proliferation of communities, neighborhoods, conditions, and circumstances.

Project objectives:

Building on the Greener Acres model, the objectives of this pilot project will be to build infrastructure that catalyzes and continually supports sustainable community development, based on local food systems and green technologies. The infrastructure should become a powerful planning tool that improves the social, economic and environmental health of communities.

Methods:

Greener Acres is expected to work through an innovative framework that is replicable, scalable, and adaptable to different economic, social, and cultural contexts. Their method can be characterized by the following process: 1. Select community, 2. Plan, 3. Implement, 4. Evaluate, 5. Improve, 6. Establish franchise(s), 7. Repeat. This process will be repeated in 5 neighborhoods in the major metropolitan areas of Ohio, each serving as models for the other neighborhoods in their city. The services offered as part of this project could cover initial garden landscaping and installation on the homeowner's property, design and construction of attached or standalone, LEED-certified greenhouses, selection of crops to be grown, soil preparation, crop planting, watering, and general maintenance throughout the growing season, harvest and post-

harvest marketing, and post-season clean-up and winterizing or replanting if in a year-round greenhouse facility. Businesses that are allied with these kinds of services (lawn care, construction, etc.) will be included in the initial network development workshops.

The pricing structure for services could fall into any of three categories:

- garden landscaping and installation, and design and construction of greenhouses - prices are negotiated based on specifications
- garden care which includes soil preparation and crop planting, watering, and general maintenance throughout the growing season, harvest, and post-season clean-up and winterizing or replanting if in a year-round greenhouse facility - set prices indexed by size of growing areas and commitment to a seasonal outdoor service package or year-round greenhouse service package
- selection of crops to be grown and disposition of the harvest - price negotiated based on market value of crop grown, how much is harvested, and how much of the harvest the homeowner wants to keep for personal consumption

Internships and apprenticeships will be offered to attract more students into urban and periurban farming / edible landscaping for future employment and entrepreneurial startups. Therefore, this project will follow and link with the youth engagement project described above. In general, the network building around this neighborhood-level pilot projects will proceed in the same general pattern as that described for the youth engagement and fresh food filling station projects described above, with participants invited from the local landowner and business community.

Research on Networks and Local Opportunities for Specialty Crops

Each of the following research areas will require collaboration and contribution from the academic institutions, businesses and stakeholder organizations that are participating in the project and have an interest in future collaborations.

Documentation and analysis of network development, function, accomplishment and pace of the transition from communication to collaboration in building local food system infrastructure.

The full complement of project partners will define and apply a methodology for documenting and analyzing network development, function, and accomplishment both locally and regionally. Their approach will note the pace with which network behavior transitions from basic communication about food system issues to ongoing collaboration in building local food system infrastructure. Among the metrics to be considered are the following: number of projects initiated, number of businesses successfully started, increase in consumer demand for locally-produced food and subsequent growth in local markets, catalog of effective solutions and practices developed and implemented that improve operations within local food systems, and influence on policy change to facilitate the growth of local food systems.

Two broad but important research questions regarding local food system collaboration and networking are (1) identifying the technical and social barriers for developing a more local food system and (2) whether, and if so how, the social relationships developed through collaborative social networks can overcome such barriers. Additional research questions that can be addressed under this proposal include:

- What kinds of exchanges (e.g., informational, resource leveraging) are created through the face-to-face and web-based network development?

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- Which individuals or organizations (e.g., private versus public sector) emerge as key resources and leaders within the networks?
- What are the priority issues of the networks (e.g., production, consumption, farmland preservation, food security, economic development, social inequalities)?
- Are there sub-groups within the networks that form to address specific issues? Do these sub-groups increase the capacity of the overall network?
- To what extent do the networks facilitate civic engagement and democratization of the food system? In what ways do the networks create opportunities for making information about the local food system accessible to consumers?
- What educational or collaborative tools will increase the capacity of the network (as measured by density and connectivity)?
- How does participants' access to and comfort with information technology affect social networking and learning.

The three participating states (Michigan, Ohio, and Pennsylvania), plus the regional working groups within each state, create significant opportunities for comparison of more localized networks. This analysis will involve several phases. Interviews with select key informants in each network group will be used for initial assessment of network function and participant comfort with the process. Observational data will be collected in two forms – participant observation of the statewide network initiation meetings and subsequent working group meetings will reveal patterns of behavior and areas of needed training. Additionally, observational data mined from existing website data collection techniques (page views, participants in threads) will also be analyzed for patterns of behavior and observable positive and negative behavior. Surveys of participants before, during and after their involvement in network activities will help quantify change in behavior and collaboration.

Communication technologies, adaptation of communication and collaboration styles by various participants in the supply chain from producer to consumer, effects on customer and producer satisfaction in direct business transactions.

Establishing a robust, scalable, and vibrant regional “web” of local food systems requires participants to accept and become proficient in very different communication and collaboration practices compared to traditional hierarchical, command-control structures and processes. Communication technologies and systems are insufficient in and of themselves. The adoption of more open, parallel, and collaborative styles is a critical determinant of success by participants in a webbed business context. Yet, the introduction of such technologies brings another set of challenges. One of the areas of research we will pursue is to identify which groups—producers, distributors, processors, and customers / consumers—have the most difficult time making the transition. This is followed by studying approaches used to help groups get on board and which ones are the most effective and why.

Related research would measure the effect of these technologies and processes on customer and producer satisfaction in direct business transactions. The methods will follow past work (Ernst and Tucker 2001, Ernst et al. 2006). Survey methodology will be used to measure information technology adoption and drivers of that adoption. A panel of Likert scale questions evaluates firm managers' attitudes about information technology and its role in their business. Correlation of those attitudinal findings to demographic characteristics predicts level of successful adoption of such technologies by that firm (in this case, also, the network).

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Market research to assist specialty crop producers with using networks to create new opportunities and document impacts on technology innovation.

The first step in this research will be to generate price and product availability reports for produce. We will use designated prices reporters such as farmers' market managers, auction managers, other direct market firms and wholesale/retail scanning to report produce/product prices by region. Prices and quantities sold will be entered into online data forms to be compiled and analyzed. Prices and trends can be presented locally and regionally offering transparency to the marketing processing. This work will be a collaboration between Ernst and colleagues in MI and PA, with technical support from John Deere and Ernst's collaborators in Kentucky and Indiana. Data will be collected on an ongoing basis during marketing season, with the primary objective of this research being to make price information more transparent for those producers trying to set their prices. Volume-available information will help producers plan current and future production, and buyers (especially wholesale) understand supply patterns.

Secondary data available from industry associations, USDA, and US Department of Commerce will be analyzed for baseline data on sales of produce and local foods by retail grocers (large and small, including convenience stores) in the three-state region. This will be followed by surveys of these same retailers to assess their current level of interest and activity in sales of "local" food products, to identify impediments and incentives to changing that level, and to identify technological innovations associated with opportunities for increasing sales and profit. Surveys conducted at the beginning of the project will be repeated with a sample of retailers in the final year to gauge change through the project. In the interim, telephone interviews with key industry leaders and analysts in the region will be conducted to bring that sector's voice to the network's activities and assessment of its impact. Additional questions in this process will seek to identify preferred and effective communication channels within the retail process and between producers and retailers. Analytical methods will be developed into a reasonably replicated "template" so that participating organizations may periodically resurvey retailers to evaluate progress after completion of the grant.

Primary Roles of Key Project Personnel:

Steve Bosserman, Bosserman & Associates, Inc. – Facilitation of project workshops and ongoing support to network collaborators via online, telephone and face-to-face meetings.

Greg Boulos, PASA, - Organization of efforts in Pennsylvania including workshops, networking pilot projects arising from the RFIN project, and linking with remainder of the region.

Stan Ernst, Ohio State Univ. – Coordinate research in networks, technology adoption, business development and impacts on food systems and specialty crop markets.

Michael W. Hamm, Michigan State University, - Coordinate between state and national levels for youth engagement project, project sustainability beyond grant period in Michigan, visibility and connection with Michigan Food Policy Council.

Casey W. Hoy, Ohio State Univ. – Overall project coordination, coordination of Ohio pilot projects, project sustainability beyond grant period in Ohio, visibility and connection with Ohio Food Policy Advisory Council

Susan Smalley, Michigan State University – Manage linkage between project and Michigan agricultural organizations and businesses, cooperating states, and pilot projects in Michigan, assist with project evaluation and research.

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Additional Cooperators:

Kathy Brasier, Jeffrey Hyde, C. Clare Hinrichs, Penn State University – Collaboration on network and business development research, Pennsylvania food system networking, and connection with extension education in Pennsylvania

John F. Reid, John Deere – Contribution to research and outreach with staff expertise in advanced marketing, advanced technology, information and management systems, and collaborative business processes that are essential for effective commercialization of innovation within local food systems.

Timeline:

Activities	2009				2010				2011				
	Quarter:	WI	SP	SU	AU	WI	SP	SU	AU	WI	SP	SU	AU
Michigan statewide food systems summit - Bosserman, Smalley, Hamm	x												
Michigan summit networking software programming - Bosserman, Rose, MSU	x	x	x										
Michigan summit followup facilitation and coaching - Bosserman, Rose, Hamm, Smalley		x	x	x									
Pennsylvania statewide food systems summit - Bosserman, Boulos, PASA, PSU	x												
Pennsylvania summit networking software programming - Bosserman, Rose, MSU	x	x	x										
Pennsylvania summit followup facilitation and coaching - Bosserman, Rose, Hamm, Smalley		x	x	x									
Youth Engagement Pilot Project - statewide leadership workshops, MI & OH - Scott, Cocciarelli, Smalley, Bosser				x									
Youth Engagement Pilot Project - Regional leadership workshops (4), MI & OH - Scott, Cocciarelli, Smalley, Bosserman, OSU					x	x							
Ongoing youth leadership coaching and network facilitation - Bosserman, Rose, Scott						x	x	x					
RFIN project focused networking workshops - PASA, PSU, Bosserman				x	x	x	x						
RFIN project network support, coaching and facilitation - PASA, PSU, Bosserman, Rose						x	x	x	x	x			
Fresh Produce Filling Station Pilot Project - 3 regional workshops, MI & OH, Hamm, Smalley, Bosserman, OSU					x	x		x					
Fresh Produce Filling Station Pilot Project - ongoing web and technical support, Hamm, Smalley, Bosserman, OSU									x				
Neighborhood revitalization food systems pilot projects (5 neighborhoods in OH metropolitan areas) Bosserman, Hoy, OSU				x	x	x	x	x					
Regional Network Building Meetings									x	x	x		
Final project reporting, research paper preparation and educational materials compilation											x	x	

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3. *Expected outcomes;*

We are proposing the active expansion of networks that include specialty crop producers, universities, local governments, financial stakeholders, end-user industries, manufacturers, community organizations, etc., using innovative social networking technology, purposeful moderation, and open network coordination. This complex adaptive systems approach leads to an emergent and largely self-organizing behavior once initiated. We anticipate it will be self-supporting by the end of a grant's project period.

Accelerating and deepening the growth in local food systems requires *a strategic framework for localization* that takes into consideration both technical and social dimensions. This framework expedites the following:

- *Creates new knowledge needed for localization*, combining pre-existing and practical know-how with current advances in the social and natural sciences and engineering.
- *Generates a flow of information and knowledge about localization* for timely transfer of learning and experiences among localities, i.e. share the wealth of know-how.
- *Develops skill-building curricula for social networking* that leads to open, widespread collaboration on building local food systems.
- *Develops education and training curricula for technical capabilities* that covers certification and bonding for practitioners.
- *Builds networks among localities* to create the effective counterbalance to the existing global system, opening a range of new scales in supply and demand.

Utilizing the strategic framework described above brings people and resources together to:

- *Support local food production in urban, periurban, and rural landscapes*, innovating with land use, enterprise diversity and season extension to address local supply and creating substantial new opportunities for fruit and vegetable producers.
- *Provide outlets for locally produced food to the public* in collaboration among producers and marketers through outlets such as produce stands, farmers' markets, convenience stores, grocery stores, food processors, food service, and food banks.
- *Implement a "zero-emissions" logistics system* that draws upon a community's collaborative and entrepreneurial capabilities to cover the care, packaging, storage, and delivery of food stuffs from the point of production to the point of consumption while reducing the carbon footprint and energy consumed to the lowest possible levels.

Our proposed network building, and facilitating the shift from communication about food systems to collaboration on building them, are expected to provide the deliverables described above: jobs, markets, logistics, diets. The project team and participating states are in a unique position, given the recent and current efforts of the various team members, to build the proposed collaboration and achieve these desirable outcomes. The region is known for its nationalized, even globalized food system, but it can and has begun to support viable local food systems. The potential relationships proposed across a range of geographic scales, organizations, businesses, governments and specialty crops producer communities, technical and consumer groups, businesses, and state and local governments can be strengthened by demonstrably effective agricultural, technical, and social networking processes. The result we envision is a sustainable system of creating and connecting jobs and businesses, reducing energy use, and advancing specialty crops.

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We anticipate technological innovation to emerge in three areas as a result of this project: (1) Design and installation of highly productive growing spaces in irregular, non-typical, and competitive locations. These include lots in urban / periurban settings, roofs of buildings, and areas that can serve dual purposes. (2) Integration of renewable energy generation and green building construction with food production so that the carbon footprint associated with production and processing is minimized. (3) Adaptation of electric-drive, compressed air, or other fuel efficient technologies for vehicles that transport people, equipment, and produce from the point of production to the point of consumption thereby reducing fossil fuel costs and shrinking the carbon footprint of the food system. Metrics to gauge success will be the number of new businesses started that provide these types of equipment or offer these services and the number of jobs created or retained in those businesses.

4. *Analysis.*

The effectiveness of the networks in developing new relationships, market opportunities, and infrastructure for specialty crops will be assessed using the metrics described under the network research in the previous section under analysis of network development, function, accomplishment and pace of the transition from communication to collaboration in building local food system infrastructure. Pilot projects will be analyzed as described. Before-and-after survey results on retailer participation and interest in local foods will be measured.

5. *How results or products will be used.*

Curriculum, practices, technology and models for building local, state and regional networks to enhance specialty crop production and markets will be documented and shared by accumulating a “how-to” file of successful practices throughout the project. This file will be created through the development of educational materials in the series of workshops described in the project. Further contributions to the file can be made via the social networking software in use, with open access and opportunity to contribute promising ideas and a rating system to quickly develop consensus on the best solutions and options. The key organizations in each of the participating states is committed to continuing this form of networking beyond the project period, and will continue to use the most successful approaches to expand collaboration to previous untapped areas and markets. Likewise, each participating state would be expected to extend the regional collaboration to its neighbors, quickly spreading the network throughout the Midwest.

6. *Outreach plan.*

The outreach plan is integral to the methods described above and has been covered thoroughly in section 2.

7. *Pitfalls that may be encountered.*

Social networks in the context of this proposal are composed of people with a common interest in building local food systems. Given the open access to information and communications provided by social networking software, participation is possible for individuals with motives

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other than the common interest and purpose of the network, a common concern for networks of all types. A typical solution to this potential pitfall is to establish a code of behavior among network participants that clarifies goals, purposes, expectations and conditions for network use.

8. *Limitations.*

The project is limited only by the number of states and localities in which focused networking can take place. As noted above, however, the social networking approach is designed to generate self-organizing behavior that can result in spread to sustained development of new local and regional networks, and new opportunities for specialty crop producers.

9. *No hazardous materials, procedures or practices are anticipated as a result of the project.*

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