

FINDING LOCAL RESOURCES: A NETWORK ANALYSIS AND KNOWLEDGE MAP OF THE
AGRICULTURAL SECTOR IN ALAMANCE COUNTY, NC

by

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May 2014

Masters project submitted in partial fulfillment of the
requirements for the Master of Environmental Management degree in
the Nicholas School of the Environment of
Duke University

2014

Abstract

Benevolence Farm is a non-profit organization opening a local farm in rural Alamance County, NC that will house and provide career training for women as they transition out of prison. As they enter this new community, they will encounter challenges to finding and accessing local resources - including retail, employment, and local knowledge. For this project, we interviewed 20 local community members to identify and map local agricultural resources. Qualitative and social network analyses identified persistent challenges for the area's local farms, including marketing, communication, and leveraging local knowledge. We recommended several steps for marketing goods at local retail and wholesale outlets. We identified key individuals the Farm should begin building immediate relationships with in order to access their social capital and local knowledge. We developed a web-based knowledge map to display the location of agricultural resources.

Acknowledgements

This project is a study of a specific community and it could not have been completed without that community's support. We are so grateful to the residents of Alamance County and the surrounding areas for letting us in. In particular, we are so grateful to our interviewees, who granted us so much of their time. Without their insight and candor, this project would not have been possible.

We are also indebted to our adviser – Dr. Charlotte Clark – and our client – Dr. Deb Gallagher. They both went above and beyond the call of duty help us craft a high-quality, analytical project. We are so grateful for the time and attention they brought to this project and their patience.

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Introduction

The Client

Benevolence Farm is a 501(c)(3) non-profit organization that pursues innovative social-enterprise based programs that can successfully provide stable housing and employment for formerly incarcerated women in North Carolina (Benevolence Farm, n.d.). The idea of “The Farm” emerged from interviews with inmates, similar existing programs for male ex-offenders, local knowledge of the rapidly growing local food industry, and the presence of community support (T. Jisa, September 19, 2013). The organization’s official mission is “to provide an opportunity for women leaving prison to live and work on a farm where they grow food, nourish self, and foster community” (Benevolence Farm, n.d.)

In 2013, Benevolence Farm acquired an 11-acre farm in Alamance County, NC. A community home and farm facilities are planned for the Farm site, which will be operated exclusively by women exiting the correctional system. Participants can live and work at the farm for a period of 6-24 months. Social service providers will be accessible to the participants through the Benevolence Farm organization and a farm manager will be employed to oversee the farm’s operation (T. Jisa, September 19, 2013).

While on the farm, participants will gain skills to begin a career in agriculture and to enhance their capacity to reenter society. Participants will be provided education and training to operate a sustainable-focused farm as a business. Benevolence Farm aspires for participants to graduate from the program with an understanding of the local food supply chain, from how to prepare the soil to how operate a farmers market stand.

The Project

The central research question for this Master’s Project is: Where are agricultural resources located within Alamance County, NC and how can Benevolence Farm best access them?

This Master’s Project was developed to maximize Benevolence Farm’s ability to operate a sustainable-focused local farm *in* Alamance County, NC by mapping the social and knowledge networks that are in close proximity to the Farm. Mapping these networks serves a dual function as a resource for the Farm and its residents because the maps identify potential farm resources, supportive social networks, and provide quick access to local knowledge. Specifically, the project sought the most accessible entry points to the Alamance County agricultural community.

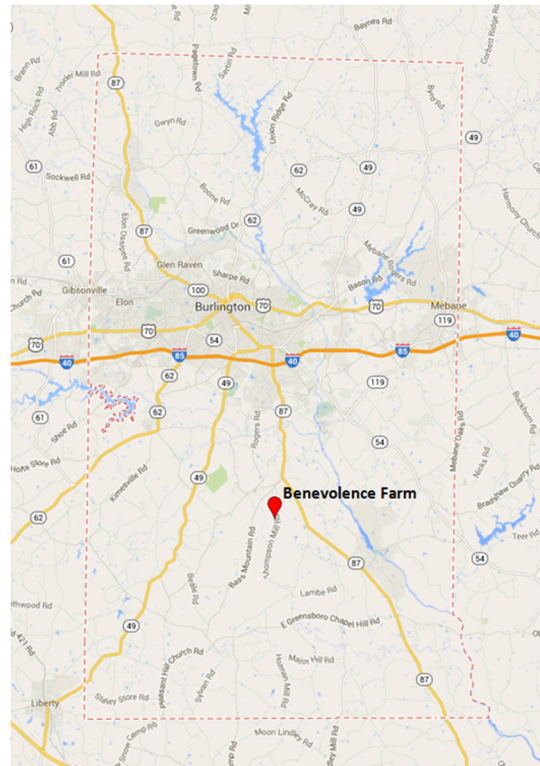


Figure 1. Location of Benevolence Farm within Alamance County, NC (dotted line)

Information will be used by Benevolence Farm to:

- Build participants’ capacity by facilitating access to local resources related to agricultural education, knowledge of farming practices, and effective marketing of farm goods.
- Minimize financial risk to the organization by identifying and gauging market opportunities.
- Develop participants’ networks by peer-to-peer knowledge transfers with local agriculture sector leaders. Participants will be able to find mentors and supporters as they ultimately look for employment opportunities following their residency on the Farm.
- Inspire participants to use newly developed social and knowledge capital to remain invested in their future aspirations.

The project team are two Masters’ of Environmental Management students at Duke University’s Nicholas School of the Environment. The client contact is Dr. Deborah Gallagher, who is a Benevolence Farm board member.

Background

The United States needs organizations such as Benevolence Farm. The Council of State Governments Justice Center (2011) provides a sobering picture of the problem:

“At the end of 2009, federal and state correctional facilities held 113,462 women, an increase of 22% since 2000. At least 712,000 women were on probation and 103,000 women were on parole at year-end 2010. According to an analysis of recidivism data from 15 states, 58% of women released from state prison in 1994 were rearrested, 38% were reconvicted, and 30% returned to prison within three years of release.”

John Schmitt and Kris Warner (2010) estimated that in 2008, the US ex-prisoner population was between 5.4 and 6.1 million. North Carolina releases 22,000 prisoners annually (INSTEPP, Inc., n.d.). The proportion and volume of female inmates has increased steadily over time, from 3.8% of the total prison population in 1960 to 8.5% in 2008 (Schmitt and Warner, 2010).

Employment is a serious problem for ex-offenders. The impact of unemployed former inmates has been connected to the US unemployment rate. Schmitt and Warner (2010) attributed 0.8%-0.9% of US unemployment to lower employment rates for ex-offenders. Effects on unemployment rates were higher for male former inmates (1.5%-1.7%) and less-educated male former inmates (6.1%-6.9%). Combined, unemployment amongst prior inmates reduced the 2008 US GDP by \$57 to \$65 billion per year (Schmitt and Warner, 2010). To address these trends, Benevolence Farm aims to equip participants with skills for a career in agriculture.

Beyond unemployment, recidivism is also a challenge for women leaving prison. Deschenes, Owen, and Crow (2006) found that 40% of female inmates released in the 1994 study group were reconvicted for a new offense, parole, or probation violation, however, only 18% of these women received a new sentence. Rearrests are also a problem. Deschenes, Owen, and Crow (2006) also found that women incarcerated for drug or property offenses are most likely to be rearrested within three years

of release. Women incarcerated for a violent offense are the least likely to be rearrested at 48.5% rearrests. Of these rearrests, only 16.4% of violent offenders committed another violent crime with the large remaining majority instead arrested for drug, property, or public order violations (Deschenes, Owen, and Crow, 2006). Drug offenders comprised 42% of the 1994 study group, with 59% later rearrested. Of these rearrests, 39% of drug offenders were rearrested for another drug violation.

With this challenge in mind, Benevolence Farm strives to reduce the number of reoffending females by providing a safe, reflective place for women to reenter society. Living and working at the Farm site will allow participants to re-enter society while being fostered by a strong support network. Benevolence Farm will combat unemployment by guaranteeing employment to participants. The organization will also strive to prevent participant recidivism and rearrests by housing women at the Farm, where they will have minimal contact with prior associates and substances that could facilitate criminal activity.

Benevolence Farm has committed itself to an at-risk target population that has a high degree of potential to benefit from the organization's Farm. However, the organization's success relies on more than just a finding the correct target population. It also requires finding the resources in the community needed for succeed. In the rest of this report, these resources will be examined in depth.

Methods

This project is a case study of the agricultural community in Alamance County, NC. A case study is a bounded and specific inquiry into a specific system (Stake, 2003). For this project, a case study approach was chosen because it best addressed the research question - Where are agricultural resources located within Alamance County, NC and how can Benevolence Farm best access them? Benevolence Farm is interested in better understanding the sustainable agriculture community in Alamance County, NC. This is clearly a system of communication and relationships bounded by a specific geography and

professional interest. Case studies focus on one specific system, rather than trends or patterns across multiple systems (Stake, 2003). Benevolence Farm wants to better understand how it and its residents can operate within Alamance County specifically, not the across a much larger geography. This interest, again, supports the use of this method of inquiry.

Case studies allow for the use of multiple methods, both qualitative and quantitative, to explain the subject under investigation (Stake, 2003). The primary methods for this case study are qualitative data analysis and social network analysis. The objectives of these analyses are to produce recommendations for Benevolence Farm and to construct an online knowledge map for the Farm. The knowledge map identifies experts who are farming and involved in the agricultural community in Alamance County, NC. Below, we outline our methods for this study, including data collection and observation, qualitative data analysis, social network analysis, and knowledge mapping.

Data Collection

Data for this project were primarily collected through semi-structured in-person interviews. We began identifying interviewees using recommendations from the Benevolence Farm Board of Directors. We followed a "snowball" interview, or chain-referral sampling, process. This process asks current interviewees to identify others to interview next. Those subsequent interviews refer the next round of interviewees and so on. This process can help to achieve broad coverage of respondents, particularly when a social network already exists within the target population (Abdul-Quader et al., 2006). Since the social network of the interviewees was of primary interest, this approach is well adapted to our research. In addition, influential individuals are likely to be identified by their peers. Therefore, asking individuals for interview recommendations proved to be a very effective process for identifying new contacts. Eighteen interviews were conducted between September and December 2013, and we spoke with 20 individuals in total (Table 1). Two of the interviews were conducted with multiple individuals for the same organization at the same time. All of these interviews were conducted in-person except for one

phone interview. Interviews lasted between an hour and an hour and a half. Audio was recorded and written notes were taken at each interview. A full interview guide can be found in Appendix A.

Interviews aimed to answer the following questions about the Alamance County agricultural network:

- Who do people turn to for information?
- How do people communicate?
- What resources are available in the community and how do people access them?
- What information is important for new entrants to know?

Table 1: Project Interviewees

Contact Name	Company	Sector
Ben Filippo	Benevolence Farm	Nonprofit
Charlie Syndor	Braeburn Farm	Farmer
Debbie Roos	NCSU Cooperative Extension, Chatham County Center	Farm Services
Elizabeth Read & Leila Wolfrum	The Company Shops	Retail
Elizabeth Zander	South Durham Farmers Market	Retail
Eric Henry	TS Designs	Other
Erin Jobe	Carrboro Farmers Market	Retail
Heather LaGarde	Haw River Ballroom/Cup 22	Other
Janet McFall	Elon University	Education
Jeff Barney	Saxapahaw General Store	Retail
Kevin Meehan	Turtle Run Farm	Farmer
Liz Clore	Bushy Tail Farm	Farmer
Mark Danieley	NCSU Cooperative Extension, Alamance County Center	Farm Services
Melinda Fitzgerald	County Farm and Home	Inputs
Phil Bowers and Narciso Salas	Sustainable Alamance	Nonprofit
Robin Kohanowich	Central Carolina Community College	Education
Tanya Jisa	Benevolence Farm	Nonprofit
Val Hanson	Benevolence Farm	Nonprofit

Additional observational data was collected from the Farm and its stakeholders. This took the form of notes from Farm meetings, Internet searches on stakeholders and local organizations, resource guides and other reports, and financial data. Alamance County is also in the process of creating a Local Food Council. We attended the second organizing meeting for the council, whose purpose will be to facilitate connections across groups and create synergy in the county's food system (Shi, 2013). This additional observational data was used to supplement and corroborate the data from the interviews themselves.

Qualitative Analysis

After completing interviews, both team members' notes were compiled into individual documents for each interviewee and uploaded for analysis using NVivo 10 (n=20). NVivo 10 is a software package that allows the user to look for trends across qualitative data. For each substantive topic or trend, a code was created and assigned to the interview notes, observations, and material culture. Once coding was complete, interview notes were reexamined to identify themes present in the data. This formed the backbone of the qualitative data analysis.

In addition, data was coded for individuals and organizations. The frequency and characterization of these references was compiled. This information provided the inputs for the social network analysis, presented later in this report.

Queries and Models

Once data was reviewed and coded, NVivo 10 was used to run queries. Queries in NVivo 10 are highly flexible and can be expanded or focused to identify significant data trends. For this project, the following queries were used: text search, coding, and matrix coding. Text search is a simple tool – identifying all references to words, phrases, or concepts. Matrix coding is a tool that was used to compare categories of nodes to other nodes and generates comparative tables. Models were also used to produce

maps of nodes and allowed visual examination of data trends. Queries and models were then reviewed to identify data trends.

Social Network Analysis

Social network analysis is the modeling and analysis of individuals and the ties between them. Whereas the social sciences are generally concerned with the individuals within a system, social network analysis is concerned with the relationships between those individuals. These relationships are important because they are the way information and resources flow within a community (Wasserman and Faust, 1994, Jarosz, 2000). Stakeholder analysis is a common tool, which examines and categorizes individuals (Reed et al., 2009). Social network analysis expands on stakeholder analysis to include "the role communication networks can play in categorizing and understanding stakeholder relationships." (Prell, Hubacek, & Reed, 2009)

Our research question seeks to understand resource locations in Alamance County and the means to quickly and easily access them. While some of these resources are physical - such as farming equipment - most are intangible knowledge. These resources are uncovered by examining relationships. When people rely on each other's knowledge and expertise, a relationship will exist. Because of this relationship focus, a social network analysis is the chosen methodology for this project. The social network analysis aims to identify individuals that are the best sources of information and knowledge.

Social networks are, by definition, a finite set of individuals and their relationships. However, the researcher must to establish the bounds of the network on the basis of "theoretical, empirical, or conceptual criteria" (Wasserman and Faust, 1994). For this study, the network has been bounded to include all actors within the sustainable agricultural community, including producers; retailers; extension agents and educators; food and agriculture-related non-profit professionals; and sustainable agriculture champions. Geographically, the network consists of Alamance County and the neighboring areas. While we are primarily interested in Alamance County, we did not exclude important resources found nearby,

particularly when no substitutes are found in the County itself. We did, however, limit the producers in the network to Alamance County residents.

Centrality

Central actors are those that have many ties to others (Wasserman and Faust, 1994).

Conceptually, centrality is important to this study. Interviewees were asked about resources in the community and their responses were used to identify relationships between individuals. An individual with many ties to others, and therefore a higher degree of centrality, is likely to be an important resource.

Just because an individual is central to a network, however, does not mean that they will be influential. Incentives for these individuals to assert influence must be in place (Crona and Bodin, 2006). While social network analysis can identify the central individuals, more analysis is needed to uncover the role and incentives of these individuals. The qualitative data collected in the interviews are important for testing the results of the social network analysis.

Centrality is assessed in four ways - degree, closeness, betweenness, and eigenvector centrality. Degree centrality is the number of links that a node, or individual, has. An individual with a highest degree centrality is connected more individuals than anyone else in the network (Wasserman and Faust, 1994). In this study, degree centrality is used to identify those individuals others turn to for resources most often. Because those individual who were pointed towards are the important resources, we used measured indegree centrality, or degree prestige. This is a measure of the number of times an individual is pointed toward in the network (Wasserman and Faust, 1994).

Building on indegree centrality, eigenvector centrality measures how connected an individual is to other well-connected individuals. It quantifies the degree centrality for all nodes in the network, and then awards a higher value for those connected to the most well-connected individuals (Prell, 2011). This is a more nuanced measure of degree centrality, since it can identify who is resource to other knowledgeable individuals.

Closeness centrality is a measure of the distance from one actor to the others in a network. A highly central individual, by this measure, has to communicate through the fewest number of other people in order to reach the entire network. If the links in the network are the pathways for information, closeness centrality measures the minimum distance that information must travel to reach everyone. Those identified as having high closeness centrality can quickly communicate across a network (Wasserman and Faust, 1994).

Not all individuals in a network have a direct relationship - other individuals fall "between" them. Betweenness centrality measures how centralized this person in "between" is. If an individual falls between many non-adjacent actors, that individual has a relatively high betweenness centrality (Wasserman and Faust, 1994). This measure is useful for identifying the bottlenecks for information flow within a network - the critical nodes that serve as brokers for information.

Cohesive Subgroups

The mixture of connections within a community is also important. Strong, bonding ties between individuals create dense networks and build trust (Newman and Dale, 2005). Individuals within a social network that are more tightly connected are also more likely to share similar knowledge (Crona and Bodin, 2006). However, these networks can have rigid social norms and be resistant to change. Bridging, or weak, ties are important for linking the community with resources and adapting to change. Both of these types of social capital are needed. Newman and Dale (2005) observe that, "bonding capital provides the group resilience needed to absorb the benefits of bridging capital; the two capitals are complementary."

While a balance of these ties is important, a universally perfect ratio of the two does not exist. Optimal network structure depends on the task. While centralized networks may be easier to organize, complex networks may provide access to the diversity of information required for long-term management (Crona and Bodin, 2006).

Benevolence Farm may encounter two important complications regarding social capital. First, without a correct mix of bonding and bridging social capital, Benevolence Farm may have significant difficulty entering the community. Dense, bonding networks can exclude outsiders (Portes, 1998). However, in an out of balance network, Benevolence Farm could play an important role creating bridges within the community and connecting diverse interests. Creating these ties could increase Benevolence Farm's access to power brokers and improve its overall resilience (Newman and Dale, 2005).

In this study, cohesive subgroups, or modularity, are used to measure bonding and bridging connections. Dense networks with strong ties will show themselves as cohesive subgroups. Those subgroups are more likely to have frequent interactions and homogeneity (Wasserman and Faust, 1994). These groups will be important to identify, since Benevolence Farm may want to structure interactions with different groups differently. In addition, the Farm should think about the role it plays in the network as a whole and how it can help create a productive balance of strong and weak ties.

Limitations

The shortfalls of social network analysis must be acknowledged. As Skvoretz, Fararo, and Agneessenes (2004) recognize, potential bias in networks may influence the information that an individual provides about his or her network. Homophily, for example, suggests that participants are more likely to identify ties with individuals that are similar to themselves. This clearly occurred in this study's interviews, since individuals struggled to identify individuals outside the local food community. People must think creatively about their network when trying to identify resources.

In addition, social network analysis only examines communication-based relationships within the community. Individuals, however, can exert influence in other ways. In their analysis of Peak District National Park in the United Kingdom, Prell et al. (2009) did not find statutory bodies to be very central to the social network, in spite of the important influence that government policy can have on stakeholders. The authors suggest that their under-represented role in the network was due to the method of asserting influence. Communication networks are not the only way that stakeholders impact others.

Process

Individuals, or nodes, were identified by interviewees. Relationship links, or edges, were drawn between interviewees and resources they mentioned during the interview. Edges are displayed as directed; they indicate the direction of information flow between nodes. Because we were unable to interview everyone in the network, an undirected network would be biased. Particularly when measuring centrality, an undirected network would place undue weight on those individuals we interviewed. For example, while an interviewee might not be seen as a particularly good resource within the network, our analysis would show that they are. Each time the interviewee pointed to others, that interviewee would be given weight, whereas others would not have the opportunity to accumulate the same weight through the interview process.

For this project, Gephi was used to produce the social network analysis. Node and edge lists were created from the interview data and uploaded into Gephi. Using Gephi, we examined both centrality and modularity, or cohesive subgroups. Two different data displays were examined. The first showed the network with nodes clustered closely together, minimizing edge length and complexity. The second plots the nodes on a map according to the actual farm or business location. This allowed us to look for any geographic patterns within the data.

Knowledge Mapping

Knowledge maps push the concept of social network analysis one step further. While social network analysis can map individuals and relationships, knowledge maps organize and display the information (Eppler, 2001). Since knowledge is distributed unevenly throughout a network (Nissen and Levitt, 2004), mapping its location is important to make it usable. Building a knowledge map cuts to the heart of this study's research question - where are the resources in this community?

Knowledge maps are commonly used by corporations to organize their internal community. They show the "relationships, locations, and qualities" of the company (Eppler 2001). However, knowledge

mapping is also applicable to communities engaged in natural resource management. In particular, it is a powerful tool for stakeholder analysis when coupled with social network analysis (Reed et al., 2009).

Knowledge maps can take several different forms, the choice of which is driven by the question that needs to be answered (Eppler, 2001). A knowledge structure map best meets the needs of this project. This type of map organizes people along attributes, including expertise and location. Structure maps answer the question of where people are (Eppler, 2001).

In this project we chose to use Google Maps to create a customized aerial map. We chose a web-based platform, because users are more likely to accept a knowledge map when it is presented on a familiar platform (Eppler, 2001). We are examining a community that ranges across a county; the physical location and proximity of resources is relevant and dictated our choice of an aerial map. In addition, we wanted to expand comprehensiveness of our social network analysis, which is already location-based. Consistently using location-based tools creates a cohesive and easy to understand set of tools for Benevolence Farm.

Results

Similar Organizations

A study of organizations with similar visions regarding former inmates was conducted as part of the project. Research sought non-profit organizations located in the Triangle and Southeast US, but was expanded geographically to find longer-running programs.

The majority of organizations identified are non-profits. Research suggests that this is no coincidence, Rutgers University (2013) found that non-profit organizations are more successful than other types of organizations when complex programs are needed, like those related to agricultural workforce development. This is attributed to quality services provided by non-profits, who are considered less motivated by financial sustainability. For-profit organizations excel at simple skills training like where efficiency and graduation rates are valued metrics for success (Rutgers University, 2013).

Our research found relatively few similar organizations. The majority of halfway houses registered in NC are for men in need of drug and/or alcohol rehabilitation. Career training is not the focus for these organizations, as it is for Benevolence Farm. Three organizations were identified, however, that are similar enough to warrant discussion: Sustainable Alamance, Triangle Residential Option for Substance Abusers (TROSAs), and Growing Home.

Sustainable Alamance – Burlington, NC

Sustainable Alamance is a non-profit organization that supports ex-offenders mentally, socially, and professionally in the northern portion of Alamance County (Bowers, 2012). Formed in 2008, Sustainable Alamance primarily provides connections to local jobs and also provides mental and spiritual counsel to those the community dubbed as a “lost cause” (Bowers, 2012). By 2012, 38 men and women had been placed in full-time jobs, with dozens more finding connections for part-time or temporary positions (Sustainable Alamance, n.d.c). For 2014, Sustainable Alamance plans to continue developing their new urban farm – CrossTown Farm – as well as to open CrossTown Café (Sustainable Alamance, n.d.a). The addition of urban farming to Sustainable Alamance’s programs came about in 2009 as a means to provide jobs to participants and to address the high food insecurity in Eastern Burlington (*Alamance Cannon*, 2014).

Sustainable Alamance works with participants to educate about wholesome food, to awaken individuals to rewarding interactions with nature, and to promote the necessity of community support for those in poverty. The organization has a strong Christian association, which it applies to its mission to combat poverty in Alamance County. “We believe that poverty is not a lack of money, but a lack of resources. We believe that you can “give a man a fish” (charity) and even “teach a man to fish” (grace and mercy), but we must also ensure access to the lake (justice) (Sustainable Alamance, n.d.b).

Triangle Residential Option for Substance Abusers (TROSAs) – Durham, NC

Another local organization that works with prior offenders is the Triangle Residential Option for Substance Abusers (TROSAs). TROSAs works exclusively with substance abusers and offers housing, rehabilitation, and employment for two years. The organization has reduced its dependence on donations and government support by starting multiple revenue-generating enterprises staffed by participants (Triangle Residential Option for Substance Abusers, Inc. [TROSAs], n.d.a). According to its website, TROSAs employs participants through its moving business, Christmas tree lots, lawn care service, and thrift store (TROSAs, n.d.c). They also offer General Educational Development (GED) certificate and education program, continuous mental support, and services at an on-site clinic (TROSAs, n.d.b).

Growing Home – Chicago, IL

Growing Home, Inc. is an organization that trains previously homeless men and women to farm at their organic urban farms. Their official training program began in 2002 with nine individuals and expanded yearly, with 35 participants in 2011. The organization promotes reentry initiatives which focus on former inmates and farming, and have successfully attracted participants by emphasizing their priority for education about organic and sustainable agriculture (Growing Home Inc., 2011).

The organization now operates multiple urban farms, facilitates the opening of farmers markets, and provides additional education through workshops and community events (Growing Home Inc., 2011). The program has expanded over time, and Growing Home now employs at least 40 formerly incarcerated individuals on their urban farms (Yu, 2012).

Organizational Analysis

Organizations like Sustainable Alamance, TROSAs, and Growing Home are similar to Benevolence Farm because they focus on individuals that have been released from prison with limited or no social support. Another commonality these organizations share is their reliance on preventing

recidivism as a metric for success. For example, Sustainable Alamance noted that three of their 38 full-time placements reentered prison. These three individuals represented less than 8% of participants, which is a 90% reduction in recidivism rates for Alamance, NC (Sustainable Alamance, n.d.c). Growing Home and TROSA did not have recidivism rates available. Recidivism rates will be important for Benevolence Farm, but will not be an available metric until participants graduate from the program. Unlike Sustainable Alamance and Growing Home, Benevolence Farm will provide on-site housing for participants. This will be fortunate because, like TROSA, additional metrics can be used to observe project success, such as complying with household rules, taking initiative, and cooperating with housemates and the public.

The Farm will be able to avoid many of the urban-specific challenges that Growing Home has faced. The Farm site has been historically used for agriculture, which means concerns of industrial soil contamination and pollution are not an issue as they would be in Chicago. Growing Home also faced obstacles with rezoning small pieces of urban land for agriculture, while the Farm site is already a farm with more than 4 acres of land available for cultivation.

A final common issue for the organizations discussed is funding. TROSA has had success in generating revenue with its multiple small-business enterprises and has reduced their reliance on government assistance. Growing Home has income from farm sales, but the vast majority of their funds come from government, private, and corporate grants (Growing Home Inc., 2011). Sustainable Alamance is focusing on branding as a means to generate revenue from their farm, but does receive funding from grants (P. Bowers, December 6, 2013). Benevolence Farm seeks a revenue structure similar to Growing Home, with funding primarily coming from grants, augmented by increasing amounts of annual farm revenue.

Qualitative Findings

NVivo 10 qualitative analysis of coded interview notes was performed to isolate local knowledge trends that can be utilized to ensure the Farm's financial sustainability and overcome commonly mentioned challenges. These local knowledge trends spanned across retailers, technical assistants,

farmers, educators, and community champions. Since marketing was identified as a significant challenge and trend, in depth analysis of interview data sought to pinpoint the ideal retail outlets that will bring revenue to the Farm. This identification prevents loss of income due to mismatch between what is produced on the Farm versus what is demanded by consumers.

This analysis of marketing challenges and opportunities generated a diverse combination of retail recommendations that also will have a secondary benefit to participants. Qualitative findings are grouped into three major analyses: General Marketing; Farmers Markets; and Additional Retail Opportunities.

General Marketing

Direct Farmer-to-Consumer Marketing

Direct farmer-to-consumer marketing encompasses transactions between the farmers and a customers with no middle or wholesale market in between. Direct marketing in local food systems occurs at farmers markets, community-supported agriculture (CSAs), farm stands, and “pick your own” farms (Martinez, 2010). Local farmers have increasingly used direct marketing in recent years. In 2007, 6% of US farmers sold farm products directly to consumers, averaging \$8,853 in income (Martinez, 2010). Edible products sold directly by farmers to consumers comprised 0.8% of all US agricultural sales (Martinez, 2010).

The retail opportunities mentioned by interviewees centered largely on direct markets. Farmers markets and CSAs were the primary mechanisms mentioned for direct marketing, with only one interviewee mentioning a farm stand, and only after being asked if he knew of any (M. Danieley, October 25, 2013). Burlington Company Shops staff members Leila Wolfrum and Elizabeth Read described Alamance County as a family community and suggested that, as a result, people like the prospect of visiting a farm and picking fruit (L. Wolfrum and E. Read, October 25, 2013).

Indirect Farmer-to-Consumer Marketing

In contrast to direct marketing, buyers do not interact with the farm as a part of indirect marketing. As a result, interviewees emphasized the necessity of developing an identifiable farm “brand” and the value of positive presentation of farm goods (L. Wolfram and E. Read, October 25, 2013; J. Barney, November 22, 2013). Wolfram and Read noted that farmers are succeeding at retailing at their local food cooperative by establishing a farm brand. They agreed that identifying the individual farm sourcing a certain product is important to their customers. Co-op customers place more value in individual farms rather than general labels like “sustainable” or “local,” which are poorly defined. Purchasing locally sourced goods at the Company Shops is not direct farmer-to-consumer marketing, so the presence of a brand compensates consumers for the additional transaction cost (L. Wolfram and E. Read, October 25, 2013).

Interviewee Jeff Barney also sources goods from local farmers to sell at the Saxapahaw General Store. Barney attributed product presentation as a means to improve indirect farmer-to-consumer marketing. In addition to a farm brand on the product, Barney discussed how southern-agriculture themed packaging emphasizes local culture and, as a result, the “product sells itself” (J. Barney, November 22, 2013). For example, a local farmer has had great success selling butcher paper wrapped meats. Barney’s example again reiterates how indirect farmer-to-consumer marketing has greater success when the provenance of a product is highlighted.

Certified Organic

Many consumers search for the label “USDA Certified Organic” when purchasing farm goods. Seven interviewees discussed whether or not Benevolence Farm should pursue accreditation, including retailers, farmers market managers, and extension agents. For indirect farmer-to-consumer sales, Wolfram and Read stated that the Company Shops does pay a premium for organically certified goods, but the company’s mission emphasizes locally produced goods rather than organic and they gladly purchase non-

certified organic goods (L. Wolfrum and E. Read, October 25, 2013). For direct farmer-to-consumer sales, Elizabeth Zander, Market Manager at the South Durham Farmers Market stated that two sellers are certified organic, with a number of other sellers certified “naturally grown” (E. Zander, November 15, 2013).

The general recommendation from interviewees was for Benevolence Farm not to pursue organic certification. Instead, interviewees emphasized the role farmers play in educating the customer about sustainable cultivation. Melinda Fitzgerald, at County Farm and Home, and Mark Danieleley, at Alamance County Cooperative Extension, stated that local farmers are leaving the organic label behind because of expensive fees and reluctance to commit to the certification requirements. Rather than seek certification, farmers that Fitzgerald encounters practice organic farming and explain their practices to customers. This “leaves the door open” for farmers to pursue organic certification in the future if they choose (M. Fitzgerald, December 2, 2013). Danieleley spoke of how the organic label has lost its luster because of changes in the industry definition, helping mass marketers like Walmart to sell organic-certified products (M. Danieleley, October 25, 2013).

If Benevolence Farm does choose to pursue USDA organic certification, a supply network is in place to support organic farming. Country Farm and Home sells organic seed, fertilizer, and starts (M. Fitzgerald, December 2, 2013). Organic farmers Clay Smith and George Teague and the Carolina Farm Stewardship Association (CFSA) could provide technical support. Retailers like the Burlington Company Shops and Eastern Carolina Organics (ECO) pay premium prices for certified organic goods.

Good Agricultural Practices (GAP) Certification

One additional certification should be considered by Benevolence Farm. Good agricultural practices (GAP) certification is a USDA voluntary certification used to “verify that fruits and vegetables are produced, packed, handled, and stored in the safest manner possible to minimize risks of microbial food safety hazards” (United States Department of Agriculture [USDA], 2013a). The “minimized risk” to

Benevolence Farm would be increased protection from lawsuits if a food borne illness appears in the food system. Also, if customers are educated about the meaning of GAP certification, trust in the Farm's brand could increase (Rejesus, 2009). Roos encouraged Benevolence Farm pursue GAP certification because it creates opportunity to retail to larger volume buyers like schools and hospitals. GAP certification also opens doors for farmers wishing to sell to supermarkets and restaurants (Rejesus, 2009).

Comparison of Farmers Markets

Farmers markets have continued to increase in number annually across the United States. In 2009, the USDA had certified 5,274 farmers markets, showing a 92% increase in number from 1998 (Martinez, 2010). Central North Carolina has no shortage of farmers markets. In August 2013, North Carolina was tenth in USDA's rankings of farmers markets per capita, with 229 certified USDA markets in North Carolina (Iowa and North Carolina are tied for the tenth spot) (USDA, 2013b). This number may be higher, however. In Alamance County, the USDA Farmers Market Directory omitted at least one farmers market (USDA, 2014). The Saxapahaw Farmers Market was discussed in-depth by interviewees, but is not included in the National Farmers Market Directory (USDA, 2014). The abundance of farmers markets in North Carolina and Alamance County can be seen in Figures 2 and 3, respectively (USDA, 2014).

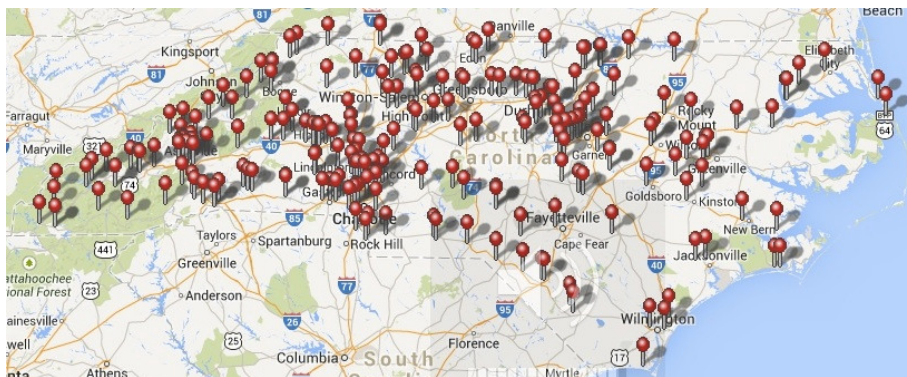


Figure 2: USDA-recognized farmers markets in North Carolina (USDA, 2014)

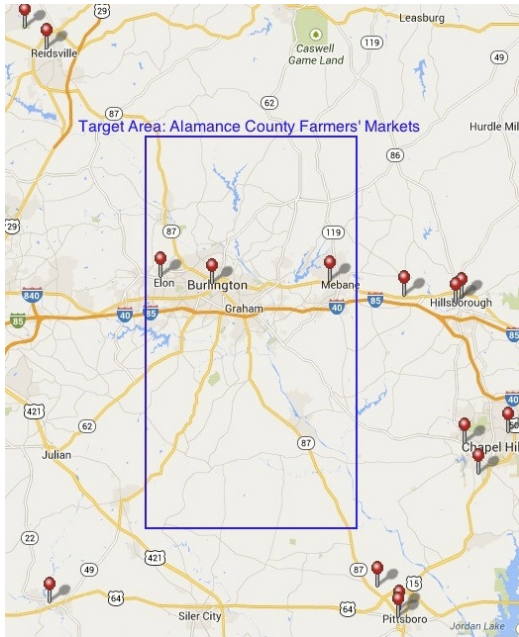


Figure 3: USDA-recognized farmers markets in Alamance County, NC (USDA, 2014)



Figure 4: Farmers markets identified by interviewees

Interviewees recommended nine markets as potential retail outlets for Benevolence Farm (Figure 4). Four of the markets mentioned – Mebane, Burlington, Saxapahaw, and Elon – are located in Alamance County. The remaining five markets – Durham, South Durham, Chapel Hill, Western Wake County, and Carrboro – are located in Wake, Durham, and Orange Counties.

Identifying the farmers markets with the highest opportunity for success for Benevolence Farm was a key question for the project. Interviewees were asked about their knowledge of potential markets. Table 2 shows the number of interviewees that mentioned each market.

Qualitative analysis of interviews found that the organization would benefit greatly from having a presence at the farmers markets located within Alamance County. The greatest obstacles to overcome when entering the larger markets located closer to the Triangle are entry and acceptance. Entry to the larger Triangle markets may be a difficult process because of the lack of available space for new vendors. In addition, Benevolence Farm may struggle to identify farm goods that are not already adequately supplied at these market locations.

Table 2: Frequency that farmers markets were mentioned in interviews

Market	Number of Interviewees Who Mentioned the Market	Number of Times Market Was Mentioned Overall
Burlington Farmers Market	9	10
Carrboro Farmers Market	7	14
Saxapahaw Farmers Market	4	11
Elon Farmers Market	3	3
Durham Farmers Market	2	2
South Durham Farmers Market	2	4
Western Wake Farmers Market	2	3
Chapel Hill Farmers Market	1	1
Mebane Farmers Market	1	1

Carrboro Farmers Market

The Carrboro Farmers Market was a contentious topic amongst interviewees regarding entry. Farmers we interviewed who sell or have sold at the Carrboro Farmers Market noted a long wait-list for a

space at the Market, which discourages new farmers from signing up (K. Meehan, October 25, 2013). However, Kevin Meehan, a farmer who sells at this Market, pointed out that the Market has a high percentage of dropouts, meaning farmers on the wait-list are frequently offered a space.

The Carrboro Farmers Market presents other challenges for Benevolence Farm as well. Erin Jobe, the manager of the Carrboro Farmers Market manager, pointed out that Market policy requires the farm owner or a family member of the farm owner to be present at market (E. Jobe, November 25, 2013). Jobe said that this requirement has prevented Transplanting Traditions, a non-profit refugee farming group, from entering the market. In addition, Meehan noted that customers value relationships with the farmers they purchase from, and was concerned that the constantly changing faces of Benevolence Farm participants would inhibit development of customer loyalty (K. Meehan, October 25, 2013).

Because of these obstacles, we do not recommend Benevolence Farm pursue a space at the Carrboro Farmers Market. Meehan recommended that if the organization was insistent on having a presence at this Market, it should first consider selling at the smaller Wednesday market. However, this strategy would not overcome the requirement for owner or an owner's family be present.

Durham Farmers Market

Two interviewees mentioned the Durham Farmers Market, but their knowledge about the market's operations were minimal. The common point about the Durham Farmers Market is that entry is difficult because the market is already at capacity and has well-established vendors (M. Fitzgerald, December 2, 2013).

South Durham Farmers Market

The South Durham Farmers Market is a newer market that opened in 2012. The Market has a very low entry-cost of \$100/year, and stall fees are \$12 from October – March and \$15 from April – September. This market is very diverse - over 40% of farmers are female and a few African-American

and Egyptian farmers sell at the Market (E. Zander, November 15, 2013). Elizabeth Zander, the manager of the South Durham Farmers Market confirmed that diversity is a consideration in review applications for market vendors. Zander also noted that, as a newer market, opportunities are available for specific farm goods that are not currently being met by vendors at the market. She mentioned customer demand for eggs, peppers, tomatoes, cuts of meat, and fruits are not currently being met (E. Zander, November 15, 2013). Liz Clore, a farmer who sells at this Market, confirmed that customers at the Market create a high demand for vegetables (L. Clore, October 29, 2013).

Another advantage of this market, identified by Zander, is the type of customers, who are avid shoppers. The majority of the Markets' customers come to grocery shop, rather than peruse, people-watch, and purchase a few interesting-looking goods like at other Triangle markets. On average, South Durham customers leave with two grocery bags full of goods (E. Zander, November 15, 2013).

Low cost to entry, diversity of vendors, and demand for produce make the South Durham Farmers Market an attractive retail outlet for Benevolence Farm. Like other small markets in the area, we recommend the Farm consider selling here. The only obstacle would be the distance participants would have to travel, which exceeds 30 miles.

Burlington Farmers Market

The Burlington Farmers Market was mentioned by nine interviewees (Table 2), making it the most commonly discussed market. The Burlington Farmers Market is a newer market that takes place on Saturday mornings behind the Burlington Company Shops (E. Henry, November 11, 2013). Ten to twelve vendors typically sell at the market (M. Danieley, October 25, 2013). This Market has few barriers to entry for Benevolence Farm. The Market is loosely organized and has few rules that would exclude the participants (M. Danieley, October 25, 2013).

The greatest obstacle Benevolence Farm would encounter at the Burlington Farmers Market is price resistance from customers. Price resistance, in this case, is an unwillingness by consumers to pay the higher prices that are charged for goods at a farmers market. Price resistance in northern Alamance County farmers markets was a common theme when comparing markets in Elon and Burlington to Triangle markets in Carrboro and Durham. Alamance County residents are not prepared to pay the premiums associated with farmers markets prices (M. Danieleley, October 25, 2013). For example, a farmer at the Carrboro Farmers Market will sell out of tomatoes at three dollars per pound, while at the Burlington Farmers Market customers will not pay such a high price. Many individuals selling in Burlington were described as “hobby gardeners” that sell at discount prices because of this consumer trend. As “hobby gardeners,” these individuals have outside income that allows them to depress prices quickly sell excess produce (M. Danieleley, October 25, 2013). The discount prices at the Burlington Farmers Market have helped to stimulate northern Alamance County residents to visit the Market, but could make generating appropriate income difficult for Benevolence Farm.

Despite the low prices, we recommend that Benevolence Farm consider selling at the Burlington Farmers Market for multiple reasons. The primary reason to consider this market is the social capital Benevolence Farm could generate from participating. Local agricultural champions like Eric Henry and Company Shops employees Leila Wolfram and Elizabeth Read helped to start the Burlington Farmers Market and remain avid supporters of its continuation (L. Wolfrum and E. Read, October 25, 2013). A Benevolence Farm presence at this market would facilitate communication between the organization and community supporters. As discussed in detail below, the social network analysis shows that these are critical individuals for the Farm to engage.

Additionally, the Burlington Farmers Market has no significant barriers to entry, such as a wait-list for a space or high stall fees. Burlington is relatively close to the Farm meaning transportation costs would be lower to attend this market than those outside Alamance County. Interviewee Charlie Sydnor described the Burlington Farmers Market as an excellent place for beginning sellers “get [their] feet wet,”

compared to the large, competitive markets in Durham or Carrboro (C. Snyder, October 23, 2013). Because of the small size of the Burlington Farmers Market and the predicted difficulties generating profits, we recommend the Farm also pursue farmers markets that occur at times other than Saturday mornings, such as Saxapahaw Farmers Market discussed next.

Saxapahaw Farmers Market

The Saxapahaw Farmers Market is another retail opportunity that was discussed at length by interviewees. Heather LaGarde, one of the initial founders of the Saxapahaw Farmers Market, described the Market as hybrid evening farmers market and concert venue. The Market began ten years ago when Saxapahaw residents discussed their common desire to see a farmers market in their small community. Because the town is small, the Market founders pursued music and entertainment as a way to draw customers to the town (H. LaGarde, November 11, 2013).

The Saxapahaw Farmers Market takes place on Saturday evenings. The Market was scheduled for this time because many retailers sold at the Carrboro Farmers Market on Saturday morning. LaGarde explained that these farmers initially used the Saxapahaw Market as a way to liquidate their remaining farm goods from the morning, but over the years the emphasis on entertainment has changed consumer purchasing habits. The market now draws between 1,000 and 2,000 customers, literally doubling the town's population for one evening a week (H. LaGarde, November 11, 2013).

LaGarde explained that customers view the Saxapahaw Farmers Market as a family event and do not attend with the intent of purchasing grocery goods. Instead, the market is described as a picnic atmosphere where families come to visit the local shops, listen to music, and simply be outside in a safe, happy environment. Over the years, the lack of grocery purchases has changed the typical retailer profile, with traditional farmers choosing not to sell and more artisanal sellers renting stalls. These artisanal sellers market art, ceramics, clothing, and other crafts. This season, approximately 50 sellers plan to

participate in the spring market – with an even 50-50 split of farmers and artisans (H. LaGarde, November 11, 2013).

The farmers who have continued to sell at the market have changed the goods they sell to adapt to customer demands. Sellers have had major success selling snack-type foods instead of grocery goods like fresh zucchini and eggs. Customers flock to stalls that sell ready-to-eat pints of berries and snap peas, which they purchase to eat with their family and friends while watching musical performances. These prepared foods are known as “value-added products” because a farmer can increase price to account for input labor costs.

Customers at the Saxapahaw market are also highly mobile when attending the market – weaving amongst artisanal sellers, visiting the Cup 22 coffee shop across the street, and taking tours of the old mill. This mobility has discouraged purchasing of flowers and grocery goods that are perishable and breakable (eggs, tomatoes, etc.) because customers dislike carrying them around all evening (H. LaGarde, November 11, 2013).

The Saxapahaw Farmers Market would be an excellent retail opportunity for Benevolence Farm participants if they provide the goods customers seek. Value-added products like salsas, jams, and pre-cut vegetables take additional planning and labor, but would offer participants the opportunity to learn new skills as they learn to prepare and package products.

Interviews have shown that Benevolence Farm will face no major barriers to entry at the Saxapahaw Farmers Market. Because of the loss of farmers over the years, farmers are given preference over artisanal sellers, allocated ideal stall spots, and pay lower market fees. Fees for farmers are \$40 per season and \$7 per market for a stall (H. LaGarde, November 11, 2013). In addition, price resistance is uncommon at this market. Leila Wolfram stated that explaining the value of local food to customers is relatively easy at the Saxapahaw Farmers Market, unlike the Burlington Market (L. Wolfram and E. Read, October 25, 2013).

The Saxapahaw Farmers Market offers participants and the organization unique advantages that are not present at the larger Triangle markets. The market has an informal across-farm exchange program. If participants were curious about a particular farming skill that is not performed at the Farm, they would have the opportunity at the Saxapahaw market to seek out a mentor farmer and gain knowledge on his or her farm. LaGarde mentioned that the exchange program is especially well-developed with livestock farmers. Overall, LaGarde described the farmers who participate at the Saxapahaw Market as supportive of Benevolence Farm's mission and willing to provide technical assistance. Many of the Market's frequent customers are farmers who have chosen to attend the market rather than sell. Participating at the Saxapahaw Farmers Market would be advantageous to Benevolence Farm participants because it is rife with farmers willing to provide knowledge and individual training. Saxapahaw is also the closest market geographically to the Farm meaning low transportation costs.

Saxapahaw is a tightly-knit community, so Benevolence Farm should anticipate being actively involved in the community if they plan to retail in at the local market. Involvement in the local community could come in the form of attending other community events, eating at local restaurants like Cup 22 and the Saxapahaw General Store, or attending public meetings. The Market is organized through a large meeting at the beginning of the farming season. If the Farm is interested in selling here, it should plan to attend.

Because of the low of entry barriers, minimal price resistance for local food, available experts, and supportive nature of the Saxapahaw local agriculture community, participation in the Saxapahaw Farmers Market is highly recommended for Benevolence Farm. The Market's Saturday evening time is also unique and would allow the participants to attend other markets where they could focus on selling more general grocery goods.

Markets Needing Further Research: Chapel Hill, Western Wake County, Mebane, Elon

Two interviewees mentioned the Western Wake Farmers Market in Morrisville but they did not have in-depth knowledge about the market. One interviewee stated that she had heard this relatively new Market was doing well and Benevolence Farm should consider selling there (M. Fitzgerald, December 2, 2013). However, more information is needed to make a recommendation about the market, especially because it is farther from the Farm than other recommended markets. Similarly, only one interviewee mentioned the Chapel Hill Farmers Market. While not as far as Western Wake, this Market is not close to the Farm and considerably research is needed before we can make a recommendation about this Market.

Only one interviewee mentioned the farmers market in Mebane. Wolfrum and Read mentioned that Mebane is a commuter community, and they are unsure of how many customers attend the Mebane Farmers Market (L. Wolfram and E. Read, October 25, 2013). However, the Mebane Farmers Market is in northern Alamance County and should be a priority for continued research because of its close proximity to the Farm.

Three interviewees mentioned the Elon Farmers Market. While the comments about this Market were vague, interviewees suggested that this Market might have less price resistance and higher attendance than at the Burlington Farmers Market (L. Wolfram and E. Read, October 25, 2013). Therefore, we recommend Benevolence Farm research the Elon Farmers Market to see if customer price resistance may be lower at that location.

Interviewee Bias

While the recommendations presented here cover nine markets, we were only able to interview the managers of two. As the previous section recognizes, we had considerably more information about some markets than others. The relative quantity of information collected for each market was biased by our interview sample. However, we do not believe this has biased our resulting recommendations.

Additional Retail Opportunities

In addition to farmers markets, interviewees discussed additional retail opportunities that would bring income to the Farm. Alternative retail options that have potential to generate revenue for Benevolence Farm include CSAs, restaurants, and food cooperatives (co-ops). Interviewees also brought up retail options like farm stands, the Eastern Carolina Organics (ECO) food hub, and chain grocery stores, but the qualitative analysis lacked the data to provide recommendations for these types of retailers.

Benevolence Farm should consider CSAs, co-ops, and restaurants in addition to farmers markets because they would expand participants' capacities for retail agriculture. Meehan and Clore were two farmers interviewed for the project, both of whom have CSAs in addition to selling at the Carrboro and South Durham Farmers Markets respectively (K. Meehan, October 25, 2013; L. Clore, November 29, 2013). Participants graduating from Benevolence Farm would have an advantage when looking for a permanent farm position if they have experience with multiple types of farm goods retail.

In addition to professional development, having alternative retail opportunities would also be beneficial to the wellbeing of participants. Debbie Roos spoke of how farmers markets are trending towards being year-round and multiple days a week. This offers more opportunities for income generation, but has also contributed to "farmer burnout" (D. Roos, December 2, 2013). Roos mentioned that farmers need downtime from markets because they can be socially and physically exhausting. During the summertime, Roos observed farmers suffering from obvious exhaustion, but continued working because they lacked health care coverage and did not want to lose income. Roos described how labor is often the first expense farmers cut, opting to work harder to save money. She recommends farmers "farm smarter, not harder," which includes finding ways to generate farm income while reducing labor. The amount of labor participants will perform at the Farm should be a major consideration for the organization. If participants work too hard, they could require emergency care or decide farming is not a career they wish to pursue.

The three retail alternatives to farmers markets (CSAs, restaurants, and co-ops) discussed below can help protect the physical and social wellbeing of participants, improve their employability, and bring additional revenue to the farm while minimizing labor intensity.

Community Supported Agriculture (CSA)

CSAs are becoming increasingly popular with consumers and farmers. A customer pays a farmer a lump sum at the beginning of a growing season and in exchange receives a weekly box of farm goods. Farmers benefit from CSAs because they receive ample income at the beginning of a growing season when their expenses are highest. They can use the income to purchase seeds, fertilizer, tools, or other inputs. Customers are guaranteed an array of farm goods without having to compete with other shoppers at farmers markets for the freshest goods. CSAs can include mixed produce and baked goods or more expensive options, such as animal products like eggs, meat, and dairy products. Customers pick up their CSA boxes at a farm or another central location (DeMuth, 1993).

Hosting a CSA has a considerably different array of obstacles than selling at a farmers market. A farmer must first decide how many CSA “shares” he or she can offer based on the amount of labor required to provide the array of goods promised. When the number of shares is decided upon, the farmer must then be able to reach their consumer base. Meehan sells between twenty and thirty shares each season and said he finds the majority of his shareholders through CFSA’s farm tours and Roos’ “Growing Small Farms” website which has a “Find a CSA” networking page (K. Meehan, October 25, 2013).

Clear CSA marketing has become increasingly important in the face of competition for internet wholesalers of local produce, such as Papa Spuds and Produce Box. These companies purchase produce from farmers at wholesale prices and distribute the produce to their customers. They still retain the name “CSA,” although the “community-supported” aspect is often argued. Rather than receiving retail prices, such as at a farmers market or a farm-run CSA, the farmer receives considerably lower wholesale prices (D. Roos, December 2, 2013).

Before Benevolence Farm offers CSA shares, they should evaluate the desires of their potential customers. Plantings for CSAs must be diverse so boxes can contain a mixture of farm goods each week. Otherwise shareholders may get upset their box is filled only with, for example, greens in the springtime or tomatoes in the summertime. Before purchasing a share, customers typically examine a list the farmer provides that details the expected CSA contents. Customers will want to choose a CSA that matches their tastes and desired diversity of products.

Price and box quantity are additional considerations the organization must gauge before selling CSA shares. Customers may wish, for example, for \$15 of produce a week rather than \$20, meaning the farm could sell more shares for a lesser price. This interest could be related to characteristics of the clientele, such as household size, or could be a function of the price the customers can afford to pay. Providing the up-front payment for a CSA share can be an obstacle for customers because a seasonal CSA can cost a few hundred dollars.

To determine these customer characteristics, Benevolence Farm participants should question other farmers about what their shareholders expect regarding price, pick-up, and box contents. For distribution, the Farm is located in rural Alamance County; shareholders may have difficulty finding the time or money to visit the farm weekly. Some customers enjoy visiting the farm because they can interact with the farmer and see precisely where their food originated. Others may have busy work schedules and can only retrieve their share on the weekend, which is typically a time farmers dedicate to market. To meet customer needs, farmers who sell at a market will sometimes allow pick-up at their farmers market stall. This increases traffic at their stall and may attract additional customers. However, market pick-ups increase the amount of preparation required before leaving for the market. Harvest difficulties may also arise with market pick-ups because vegetables that are ripe on Monday will not be retailed until Saturday.

We highly recommend that Benevolence Farm host a CSA in order to build the employment skills of participants and diversify income sources for the Farm. Diversifying on-farm tasks and retail

outlets could also help prevent farmer burnout among participants. In order to sell shares, Benevolence Farm should consider participating in the CFSA farm tour. The Farm could also promote their CSA at events and its farmers market stall.

Burlington Company Shops Market – an Alamance County food co-op

The Company Shops Market opened in the town of Burlington in May 2011. The Market is customer-owned and currently has 2,900 owners. On average, the Market has 3,500 customers a week and employs 30 people. In recent months the Market has been steadily exceeding its sales goals and is on track to generate profit by May 2014. The Market hosts a grocery section, deli counter, coffee and tea station, and a hot bar for breakfast and lunch. The upstairs of the building is in use as an office, but the managers have plans to begin using the space for educational workshops (L. Wolfram and E. Read, October 25, 2013).

The Company Shops Market was formed with three missions: to revitalize downtown Burlington; improve local access to fresh produce; and provide a marketplace where local farmers can sell their goods (L. Wolfram and E. Read, October 25, 2013). Advancing these missions has occurred with observed success. The revitalization of downtown Burlington is underway. The Burlington Farmers Market was opened behind the co-op, twelve new businesses have opened downtown, and the Burlington Beer Works cooperative brewery and pizzeria is planned to open nearby (L. Wolfram and E. Read, October 25, 2013; E. Henry, November 11, 2013). The Market provides fresh produce to customers and also serves food prepared with local ingredients in the deli café. Local farmers have embraced selling to the Market, with between 40 and 66 farmers participating (C. Snyder, October 23, 2013; L. Wolfram and E. Read, October 25, 2013). Ten interviewees with a range of backgrounds mentioned the Company Shops Market, including a farmer, two community champions, an educator, an extension agent, and an Alamance County resident. This range speaks volumes about the breadth of peoples' awareness to the Market's presence, although community champion Phil Bowers did discuss how, for some, price is still a major limitation.

Those individuals at or near the poverty line are not able to access the Market's goods (P. Bowers, December 6, 2013).

Selling to the Market was described as a very easy and quick internet-based process (L. Wolfram and E. Read, October 25, 2013). The Market purchases local produce that does not have to be certified organic, although organic sellers receive a premium price for their goods. Produce the market purchases can be raised with any type of farming practices, including conventional methods, and is only refused if the quality is lacking. The Market created a website called LoPro to manage local farm goods orders. Quantities of farm goods the Market needs are posted to LoPro on Mondays along with the offering price. Farmers have until Tuesday to use the website to report that they can provide a specific quantity of goods, then deliver the goods to the market on Thursday. Delivery is generally a 15-20 minute process (L. Wolfram and E. Read, October 25, 2013).

Wolfram and Reed, Market employees, both expressed support of Benevolence Farm's mission, saying the Company Shops would not have any issues with purchasing from the Farm participants (L. Wolfram and E. Read, October 25, 2013). We highly recommended that Benevolence Farm consider using the Market as a retail outlet because it has few limitations to entry as a seller. Selling to the Market is facilitated by the LoPro website and farmers can bring as much or as little to market as they choose. Wolfram and Read said that many farmers plant 120% of what they plan to sell to account for loss. When this loss is low, farmers use the Market for overflow production. Benevolence Farm should use the Market as a retailer as soon as production begins if the Farm is not ready to participate in a farmers market. Also, if a participant takes an interest in preparing or retailing food, they could network with Market employees for a future position or investigate what skills they should pursue. Finally, Benevolence Farm would earn social capital in addition to income from selling to the Market. Eric Henry and other northern Alamance County local food enthusiasts frequent the Market and would appreciate Benevolence Farm's support of the co-op. As shown in the social network analysis below, these are critical member of the community to engage.

Saxapahaw General Store – a locally sourced restaurant

The Saxapahaw General Store was originally a gas station that sold typical convenience store snacks, cigarettes, and beer. This changed in June 2008 when Jeff Barney and Cameron Ratliff took ownership of the store and repurposed it as a “five star gas station” that specializes in “incredibly fresh local ingredients in a no-frills setting” (Saxapahaw General Store, 2013; J. Barney, November 22, 2013). Barney is an experienced chef and butcher and used these skills to open a restaurant. Ratliff is an avid baker and began selling baked goods at the store.

The interior of the store is very unique, with a prominent restaurant. Shelves of local beer and health-conscious snacks line the perimeter of the store with a few small aisles in the back. The front of the store has a sales counter and a deli counter filled with baked goods and dishes of prepared food. The center of the store is filled with rustic wooden tables and chairs with a few vintage booths beside the front windows. Staff members circle the tables to check on eating customers and assist shoppers picking out dry goods. The gas pumps are still functional, bringing in an array of farmers, downtown Saxapahaw residents, and employees from the nearby Honda plant in Mebane.

At present, the store sources 90% of its produce locally. 75% of locally purchased goods are used in the kitchen and sold in the store as pick-up-and-go foods or eaten in the seating area (J. Barney, November 22, 2013). The store has a core group of local farmers that meet with Barney and Ratliff early in the growing season and coordinate sales to the store for the season. The Saxapahaw General Store also sources from ECO and Firsthand Foods and will purchase produce left over from the farmers market at a discount. The store also caters all events at the Haw River Ballroom and has a pilot school-lunch program with the Haw Bridge Public Charter School (J. Barney, November 22, 2013).

During his interview, Barney was supportive of Benevolence Farm. He likes the contribution it will make to Saxapahaw’s image as a visionary community. Barney also has a history of partnering with and supporting local farms as they begin operation. He “incubates” farms by providing a guaranteed

market for their produce, until they become established enough to plan seasonally with his core group of suppliers (J. Barney, November 22, 2013). If Benevolence Farm wishes to pursue the Saxapahaw General Store as a client, Barney recommended setting up an appointment with him via email. During the appointment, participants should come with samples that are ready to sell and have an appealing presentation or brand label that promotes local sustainability.

Selling to the Saxapahaw General Store would, potentially, create a guaranteed market for Benevolence Farm. It would also build important social capital in the Saxapahaw area. However, at least initially, this marketing channel could not be easily combined with other marketing outlets. For this reason, we recommend pursuing farmer markets and the Company Shops for now.

Social Network Analysis

Up to this point, we have examined the resources important to address a critical challenge for Benevolence Farm – marketing. However, identifying resources is not enough. The Farm needs to understand how to access these resources as well. Social network analysis addresses the question of access. This type of analysis identifies the connections between individuals and the entry points for the Farm and its participants into this network. Communication is a critical challenge when entering a new community. Social network analysis addresses this challenge head on.

Centrality

Indegree centrality was measured by counting the number of edges that point towards each node. While most nodes have a relatively low value, a few high value nodes exist (Figure 5). Carolina Farm Stewardship Association (CFSA) has the highest indegree value; it was recommended by 11 out of a total of 18 interviews. CFSA is followed by Alex and Betsy Hitt at Peregrine Farm, with a value of nine. Charlie Sydnor at Braeburn Farm, Eric Henry at TS Designs, Debbie Roos at Chatham Cooperative

Extension, and Mark Danieleley at the Alamance Cooperative Extension all measured seven. All of these individuals are important resources in the community, as identified by their peers.

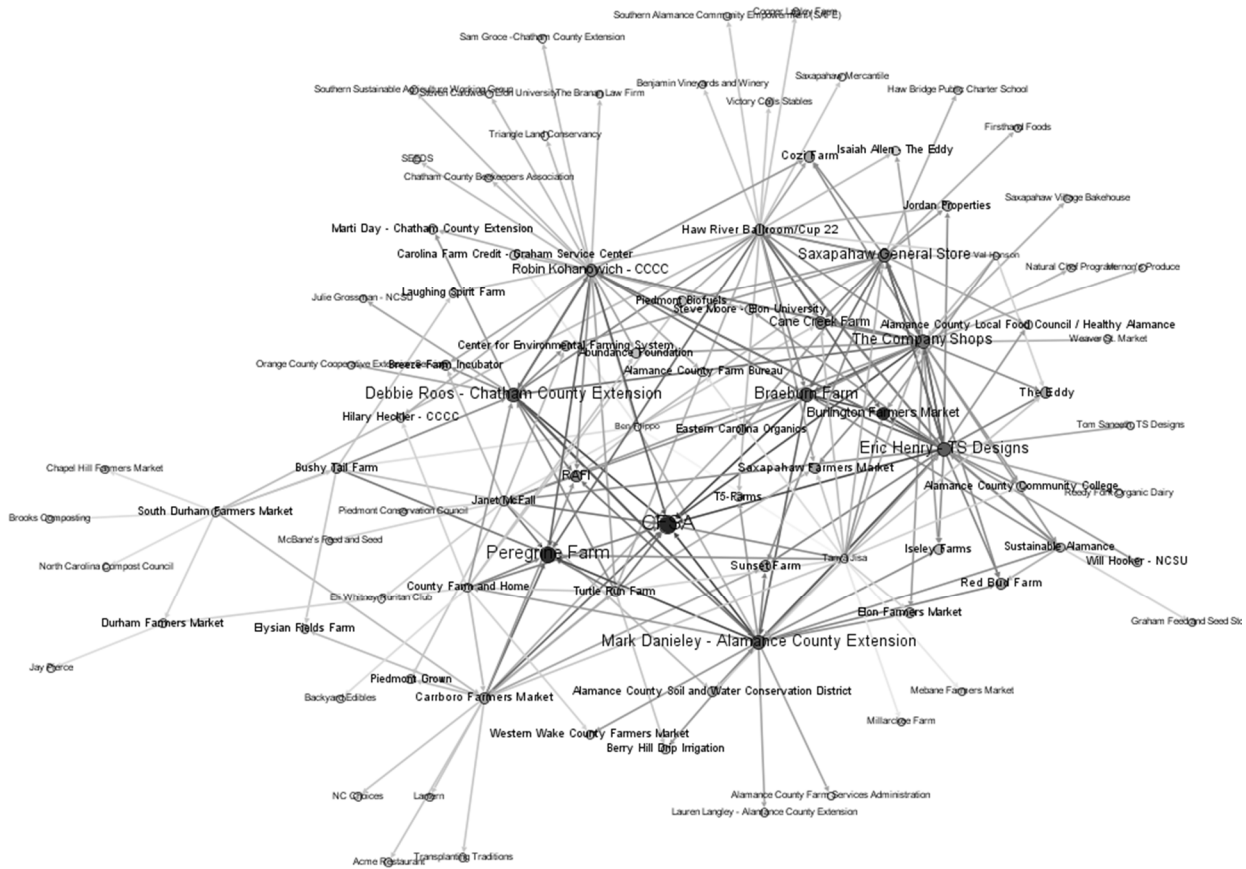


Figure 5: Indegree Centrality. Larger and darker nodes have a higher indegree centrality.

Eigenvector centrality further refines the indegree centrality results. Eigenvector centrality identifies those frequently recommended individuals who are also connected to other frequently recommended individuals. By this measure, CFSA is still the highest value node (Figure 6). Eric Henry at TS Designs, Charlie Sydnor at Braeburn Farm, Mark Danieleley at the Alamance Cooperative Extension, and Debbie Roos at Chatham County Extension all rank the next highest, in that order. Interestingly, Alex

and Betsy Hitt at Peregrine Farm, while still highly ranked, are no longer in the top five. While the Hitts are an important resource, they are not as well connected to other resources as the others identified in the indegree analysis.

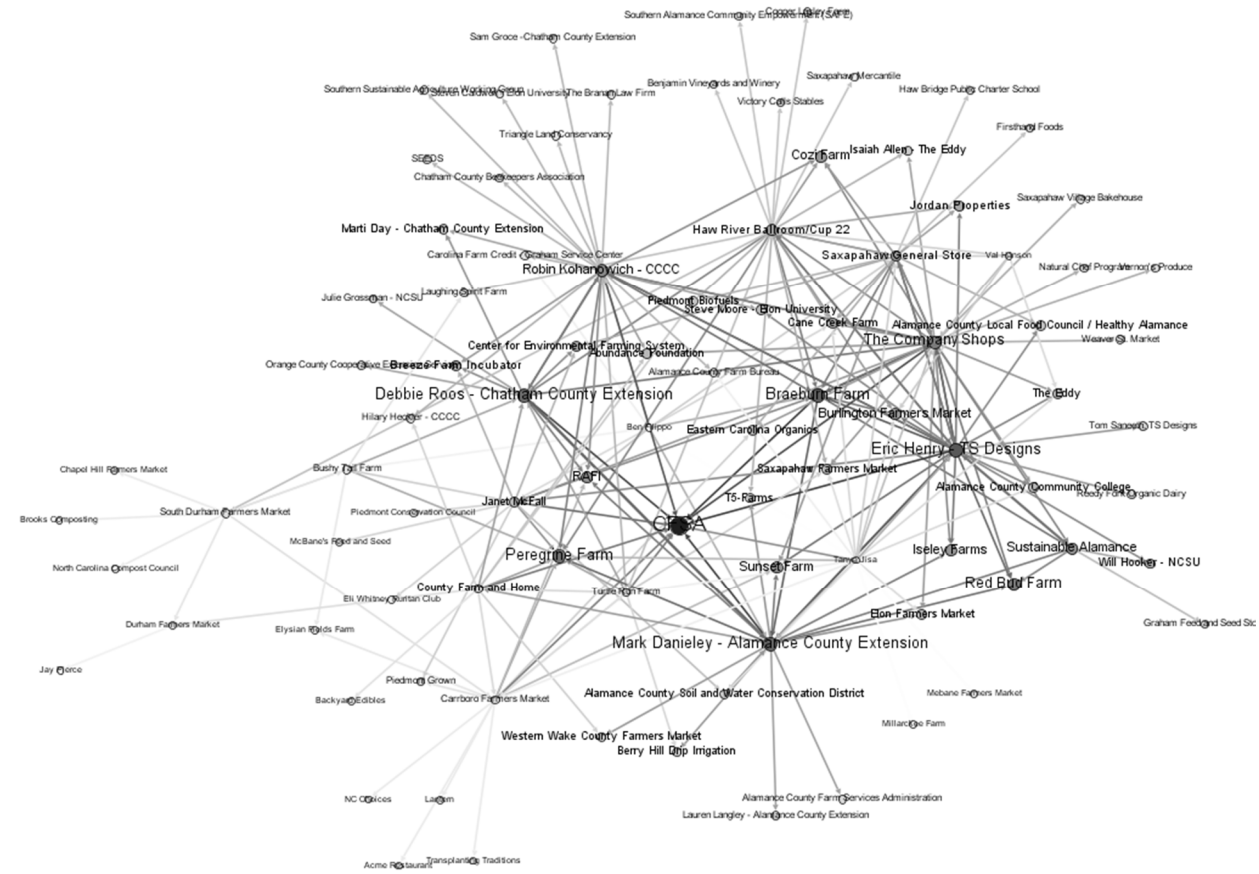


Figure 6: Eigenvector Centrality. Larger and darker nodes have a higher eigenvector centrality.

While degree and eigenvector centrality were measured using a directed network, closeness and betweenness centrality were measured using an undirected network. Whereas the first two measures locate resources within the network, the latter two identify communication patterns. If one actor identifies another as a resource, we assume that communication flows both directions through this edge. In addition, using an undirected network in this case allows for analysis of the entire network, rather than just those individuals interviewed.

The analysis of closeness centrality found that different individuals are important. By this measure, the Company Shops is the most central (Figure 7). Following the Burlington food co-op are Eric Henry at TS Designs, CFSA, Charlie Syndor at Braeburn Farm, and the Haw River Ballroom. This makes sense conceptually, since these are all locations where individuals mix and are "close" to many others. The Company Shops, CFSA, and the Haw River Ballroom all either source products from or provide services to farmers. Both Eric Henry and Charlie Syndor are Board members at the Company Shops, so these individuals have an intermediary role as well.

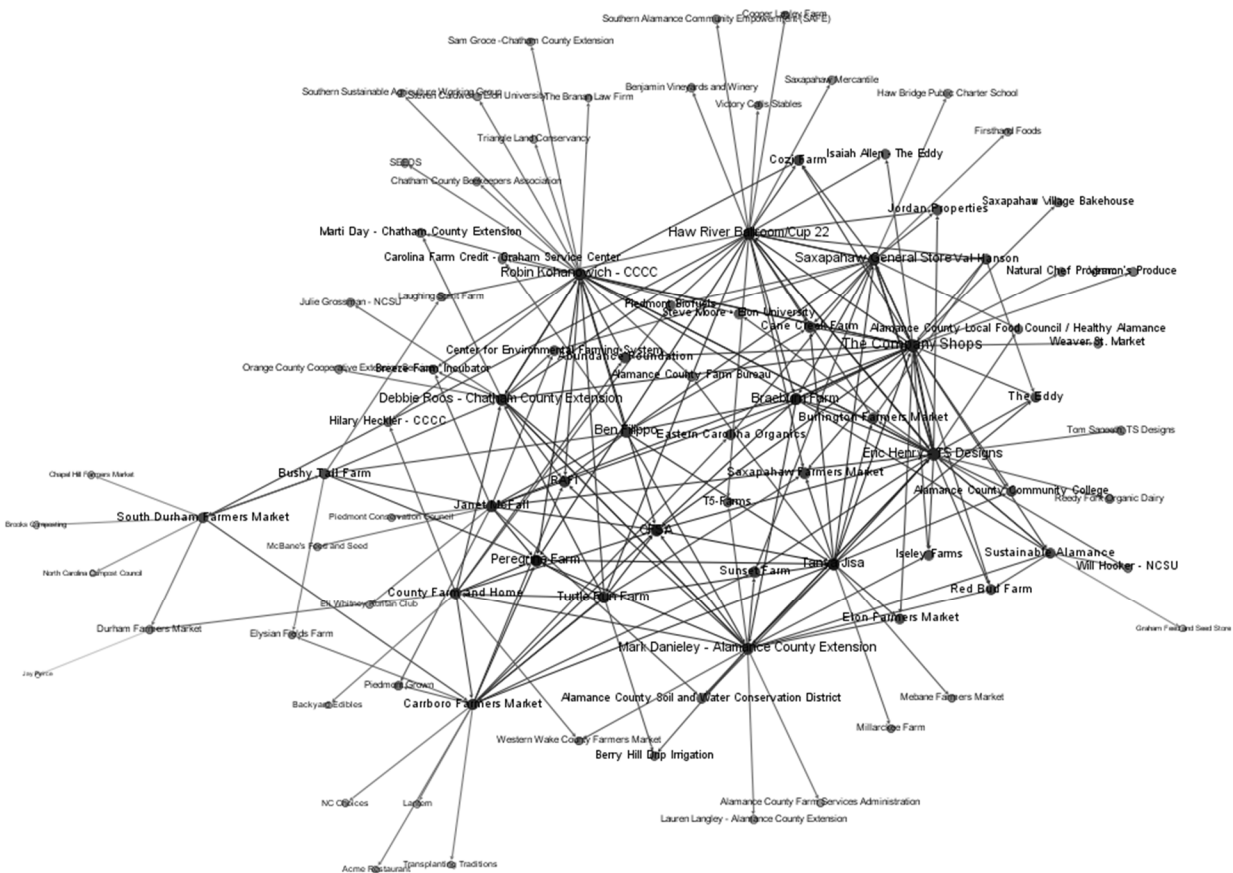


Figure 7: Closeness Centrality. Larger and darker nodes have a higher closeness centrality.

Measuring betweenness centrality had somewhat similar results to closeness centrality. Robin Kohanowich at Central Carolina Community College (CCCC), who was not ranked in the top five for any

other centrality measure, was the highest ranked on betweenness (Figure 8). Next highest was the Haw River Ballroom, the Company Shops, Eric Henry at TS Designs, and Erin Jobe at the Carrboro Farmers Market. Betweenness centrality measures the brokers or bottlenecks of information within the community (Wasserman and Faust, 1994). The Haw River Ballroom and the Company Shops (along with Board member Eric Henry), are clearly power brokers within their respective geographic areas since they are leading sustainable agriculture-driven redevelopment efforts. Robin Kohanowich, an education professional, plays a central role brokering information. Finally, Erin Jobe manages a highly influential and well-known farmers market; she controls the flow of information through this market.

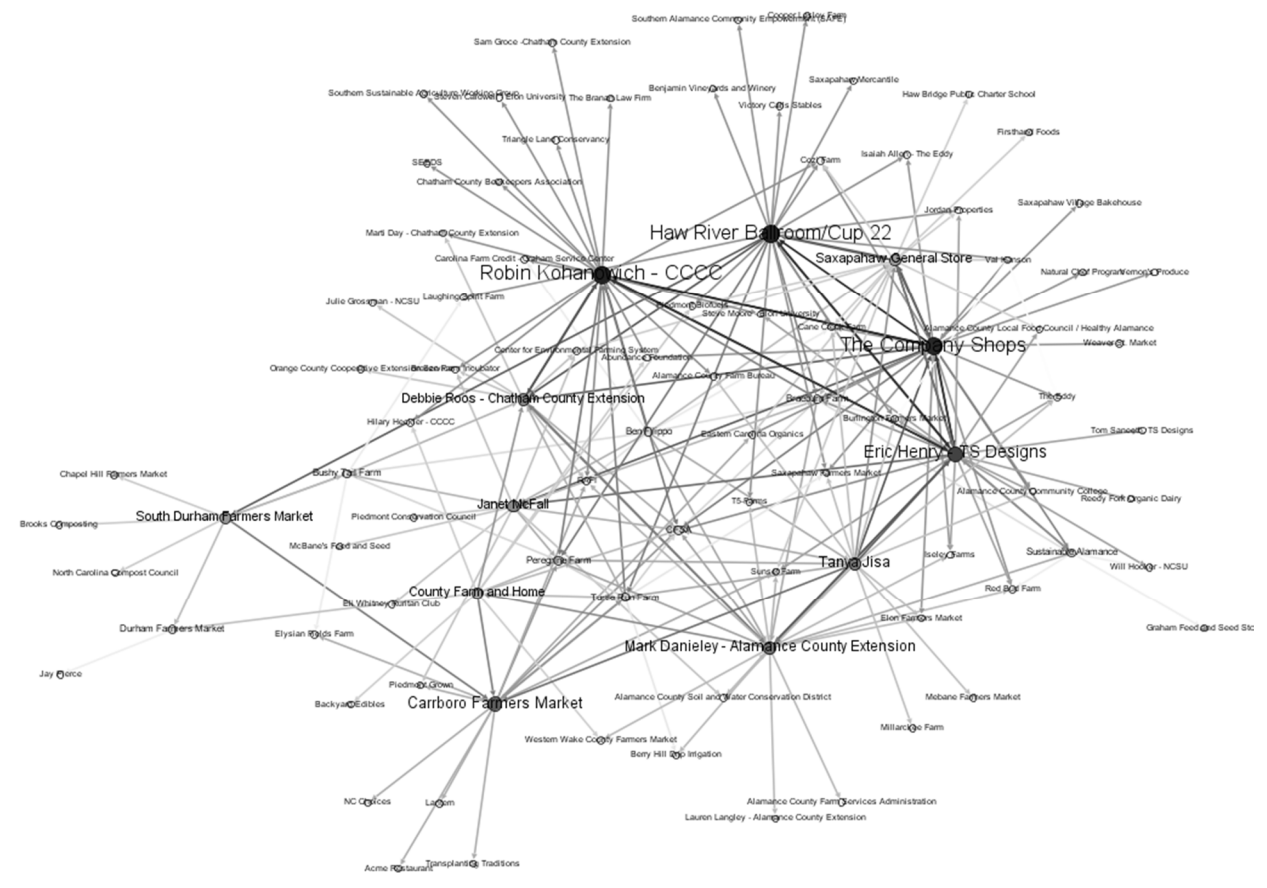


Figure 8: Betweenness Centrality. Larger and darker node have a higher betweenness centrality.

Cohesive Subgroups

When individuals are organized in cohesive subgroups, each individual within the group has a greater number of connections with others within that group than with individuals in other groups. The number of cohesive subgroups is determined by the modularity of the analysis. The lower the modularity value, the larger the number of groups identified within the network (Blondel, Guillaume, Lambiotte, and Lefebvre, 2008). Therefore, the arrangement of individuals within groups is determined by the network, while the number of groups is determined by the analyst based on the modularity. In this analysis, several different resolutions were investigated, yielding between 3 and 7 distinct communities (modularity resolution 1.0-1.5). When 3 communities were examined (modularity resolution 1.5), the subgroups appeared the most distinctly defined and appropriately scaled to total number of nodes.

Two of the three groups were found to be roughly the same size, containing 26 and 17 nodes respectively (Figure 9). The third group was somewhat larger, containing 47 nodes. When compared against sector (farmer, retail, education, etc.), no clear patterns within the clustered data exist. However, some general trends are visible. The largest group, shown in blue in Figure 9, is dominated by nodes located with Alamance County itself. Most of the farms, businesses, and nonprofits within Saxapahaw are located in this group. In addition, most of the nodes leading the sustainable agricultural investment in Burlington are within the group as well, including the Company Shops, TS Designs, and the Burlington Farmers Market.

The second largest group, shown in red in Figure 9, is dominated by service providers. The majority of professors (both at universities and community colleges) and cooperative extension agents fall within this group. This group also includes many of the nonprofits serving the agricultural community, including CFSA and the Rural Advancement Foundation International (RAFI). Less than half of the nodes in this group are located within Alamance County itself.

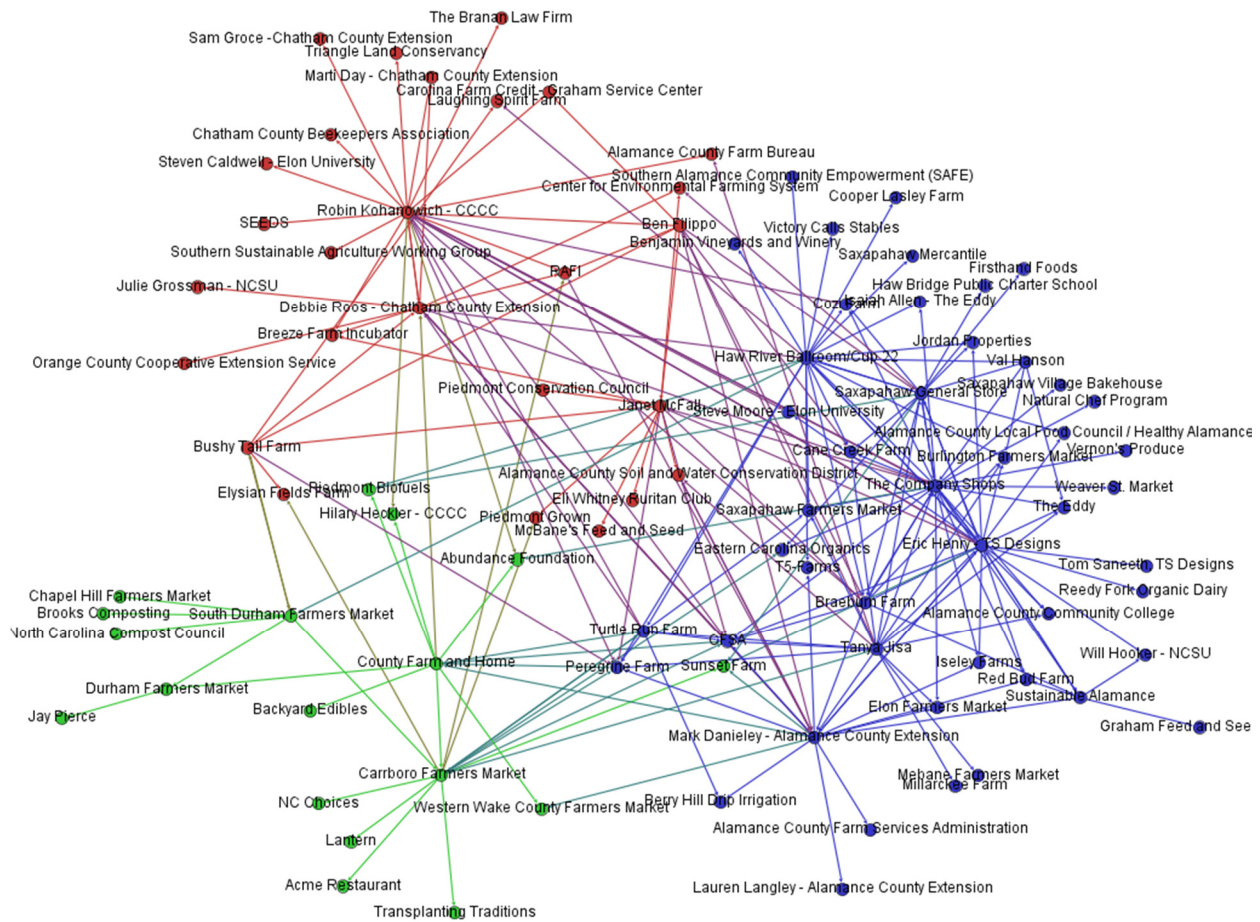


Figure 9: Cohesive subgroups (modularity resolution 1.5). Each group is represented by a different color - red, green, or blue.

The smallest group, shown in green in Figure 9, is dominated by the end users of agricultural products, particularly east of Alamance County. This group includes non-Alamance farmers markets and restaurants. It also includes a few nonprofits and education institutions which are not based in Alamance.

The Role of Geography

It was suspected, based on the qualitative interview data, that a geographic pattern to the cohesive subgroups identified above might exist. While we can identify some trends, the results are less location-based than expected (Figure 10). As noted above, the second largest group (shown in red) appears to be

mostly within Alamance County and the smallest group (shown in green) appears centered on Chapel Hill and Carrboro. Interestingly, the largest group (shown in blue) covers a fairly large geographic distance. It appears most concentrated on Pittsboro and Burlington. The individuals within each of the towns seem likely to be well connected with nearby individuals within that same town because of their proximity. However, the connections between these two communities are surprising.

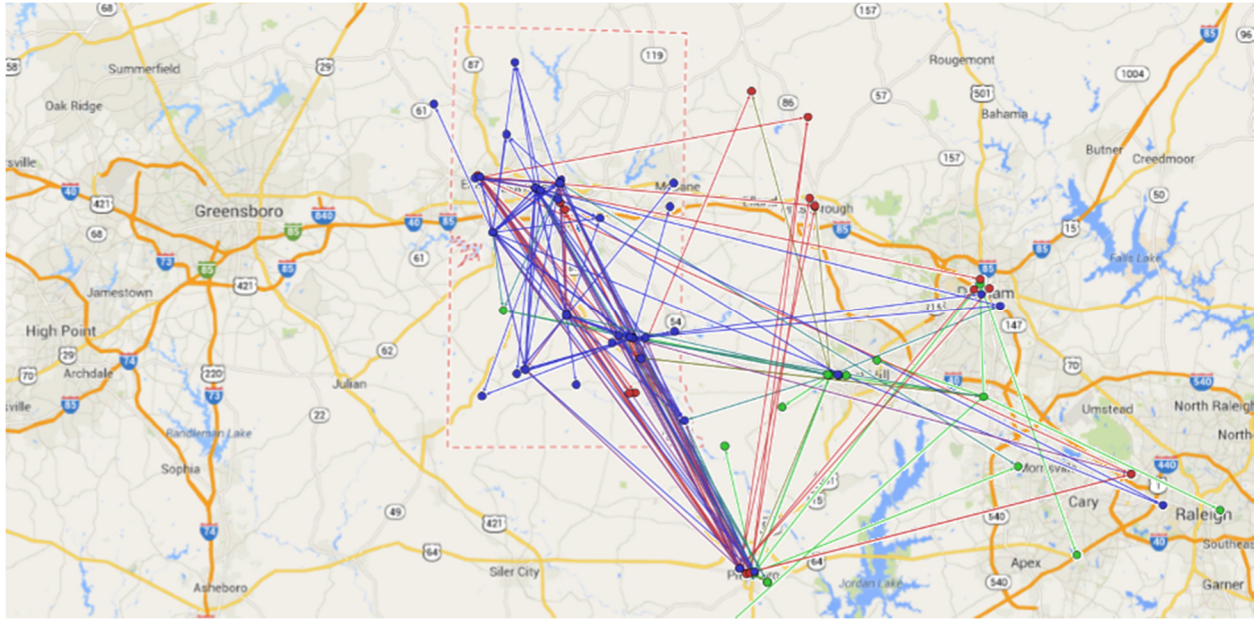


Figure 10: Cohesive Subgroups (modularity resolution 1.5) Displayed by Geographic Location. Each group is represented by a different color - red, green, and blue. The dashed outline denotes Alamance County. Note, some nodes fall beyond the geographic range of this map and are not displayed. Map source: Google Maps

Limitations

Examining the pattern of cohesive subgroups is a useful analytical tool, as noted in the Methods above. However, this data set does not appear to be relatively well adapted to modularity analysis.

Modularity analysis was repeated several times on this data set. While some of the general trends in the groupings remained, many of the nodes jumped between groups and group size fluctuated considerably.

As a result, the groupings identified are relatively weak. Across the data set, the network is relatively uniformly connected.

Bias

It is important to note a few sources of potential bias in this analysis. First, we only interviewed about 20% of the network examined here. These interviews provided a good overview of the network and a comprehensive look at the sustainable agriculture community. However, the interviewees may have been disproportionately represented in this analysis. For example, the majority of the most central nodes, by any measure, are interviewees. This could be due to the fact that interviewees were chosen by referral from others and the most referred individuals were the ones targeted for interviews. However, it could also be because these individuals were able to define the network in relationship to themselves, thus making them disproportionately important.

Homophily is another potential source of bias. As noted above, individuals are more likely to identify ties with individuals that are similar to themselves (Skvoretz, Fararo, and Agneessenes, 2004). In our interviews, homophily was particularly noticeable when interviewees were asked to identify other farmers. Alamance County has many long-term agricultural land holders that are managing their land to varying degrees. However, those within the sustainable agriculture community struggle to identify these individuals when asked about farmers. Only one interviewee recognized that these individuals have their own robust communication networks. More research, focused on a different set of questions, is needed to accurately map these individuals within the network we have mapped here.

Discussion/Recommendations

Marketing

If Benevolence Farm seeks multiple types of retail, participants will be exposed to a wider range of skills that are necessary to run a local sustainable practice farm. These skills will improve participants' ability to secure farm-related careers after graduating from the program. The Company Shops, with no production volume requirements, is the ideal place for Benevolence Farm to begin selling as it establishes

itself. Once it reaches the capacity to do so, we recommend that the Farm begin selling at the Saxapahaw Farmers Market. In addition, the Farm should pursue the South Durham Farmers Market or the Burlington Farmers Market. We recommend that the Farm continue selling any remaining produce through the Company Shops. The Farm should pursue a CSA, but only once the Farm has become established and can meet the demand of both the farmers market and CSA customers. As noted above, we do not believe that organic certification is worth the investment if the Farm sells at these venues. Eventually, however, the Farm may wish to pursue GAP certification if it exhausts these marketing avenues. This would open up a new market of institutional customers. These recommendation are explained in depth below.

Recommended Farmers Markets

Based on the data collected from interviews, we recommend Benevolence Farm consider retailing at three markets.

1. Saxapahaw Farmers Market

The Saxapahaw Farmers Market is recommended because it has:

- Low price resistance from customers
- Incredibly low entry barriers and no exclusions for non-profit organizations
- Affordable market and stall fees (\$40 per season and \$7 per market for a stall)
- Sellers and attendees with considerable farming knowledge
- Farm-exchange opportunities to expand farming skills
- A community that is supportive of Benevolence Farm's mission
- A Saturday evening schedule, opening up Saturday mornings to attend other markets
- Close proximity to the Farm
- Opportunities to build social capital with the Saxapahaw community

Together, these nine qualities make the Saxapahaw farmers market the most ideal retail outlet for goods produced by the Benevolence Farm participants.

2. South Durham Farmers Market

The South Durham Farmers Market is recommended because it has:

- Affordable market stall fees (\$100/year and \$12 stall fees October – March, \$15 from April – September)
- A diverse group of farmers
- A shortage of farm goods participants could supply (eggs, peppers, tomatoes, cuts of meat, fruits)
- Customers that purchase large quantities of grocery goods (2 grocery bags/customer on average)
- No rules that would exclude a non-profit participant

One drawback of the South Durham Farmers Market is that it is more than 30 miles from the Farm site. However, because the Market is located in the Triangle, vendors can likely set prices similar to the Carrboro or Durham Markets, but without the barriers to entry that accompany these markets.

3. Burlington Farmers Market

The Burlington Farmers Market is recommended because it has:

- A low-stress atmosphere that is helpful for beginning farmers to gain experience
- No rules that would exclude a non-profit participant
- Opportunities to build social capital with community champions who are supportive of Benevolence Farm and local food
- No wait-list

The main drawbacks at this Market include competition with “hobby gardeners” that discount their produce because they are not dependent on farm income. While these discounts have kept customers

visiting the Market, they have led Alamance County residents to resist prices equal to those of Triangle markets like Carrboro.

Recommended Additional Retail Opportunities

Aside from farmers markets, additional retail opportunities for Benevolence Farm include hosting a CSA, selling to the local co-op, and retailing to locally sourced restaurants. Findings from analysis of interview data show that retailing to the Burlington Company Shops Market would be an opportune way for Benevolence Farm to ease into retail sales because:

- Demand for inventory is met by weekly postings declaring need for specific goods
- Sellers can dedicate as little or as much as they choose on the LoPro website
- No requirements for the type of practices used to cultivate produce exist
- Involvement with the Market builds social capital for the organization in northern Alamance County

Hosting a CSA is advantageous to the Farm and its participants, although the Farm must weigh major planning considerations before selling shares. Benevolence Farm and its participants would benefit from a CSA because:

- CSAs provide a sizable source of income at the beginning of a growing season, helping to offset investment in farming essentials
- Picking up CSA boxes draws visitors to the Farm
- CSA boxes can also be distributed at farmers markets, increasing traffic at the stall
- Participants can gain experience with a product many farms offer, therein improving their employability
- Participants can diversify their tasks on the Farm, giving them a break from farmers markets which can be socially and physically exhausting

Considering these alternatives to farmers markets can generate additional income for the Farm, as well as increase awareness about Benevolence Farm to Alamance County residents. Participants gaining skills with CSA operations will build their capacity for business operations that other farmers may find attractive in potential farm employees. CSAs, however, require significant production sustained throughout the season. The Farm should consider this option only once it is established enough to ensure it can meet its commitments.

The primary reason Benevolence Farm should consider a CSA and selling to local food co-ops is again attributed to the Roos statement, “farm smarter, not harder” (D. Roos, December 2, 2013). Overflow production can be sold to the co-op, rather than wasted or sold at extreme discounts. Distribution of CSA boxes at the Farm or a farmers market stall reduce transportation costs and the energy participants expend trying to sell small quantities of vegetables to individual customers at market. Finally, Benevolence Farm goods being represented at multiple retail markets will contribute to public awareness about the organization, as well as help build the “Benevolence Farm” brand.

Social Network Analysis

Borgaiti, Mehra, Brass, and Labianca (2009) note that the opportunities and constraints that an individual faces are primarily due to his or her position within their network. For Benevolence Farm, who is looking to leverage resources and opportunities within the community, correct positioning will be very important. We offer the following recommendations as Benevolence Farm and its residents begin to establish themselves with the Alamance County agricultural community.

The social network analysis has identified some resources that Benevolence Farm and its residents should begin leveraging immediately. Those nodes with a high indegree value are the holders of important information. Benevolence Farm residents, in particular, should go to these individuals with questions about farming or the agricultural supply chain in Alamance County. Alex and Betsy Hitt at Peregrine Farm (for fruit and vegetable production) and Charlie Syndor at Braeburn Farm (for ranching)

are the most important places to look for help with sustainable agriculture production. CFSA and Mark Danieleley at Alamance Cooperative Extension are the most critical service providers for the residents to access. Finally, Eric Henry, while not a retailer himself, is well connected within the retail and nonprofit community and is a good place to start looking for information on those sectors.

For the Farm as an organization, those with a high eigenvector centrality value should be outreach targets. These individuals represent an important network of information and the Farm should work to infiltrate this network in order to access this information over the long-term. CFSA, Eric Henry, Charlie Syndor, Mark Danieleley, and Debbie Roos at Chatham Cooperative Extension are all influential individuals with whom the Farm should focus network building activities.

Closeness and betweenness centrality provide important insights into the flow of information through the network. Benevolence Farm should look to those individuals that rank highly on these measures when planning a communication strategy. CFSA, the Company Shops, and the Haw River Ballroom - those that scored highest on closeness centrality - bring people together and are important places to advertise about the organization or its events. Nodes that scored highest on betweenness centrality, including the Haw River Ballroom, Robin Kohanowich at CCCC, the Company Shops, Eric Henry at TS Designs, and Erin Jobe at the Carrboro Farmers Market, should be utilized to disseminate messages across the community. For Farm residents, these are important power brokers to target when looking for future opportunities in the agriculture community.

As noted above, a resilient network has a mixture of dense groups with weaker connections between them. While the network in Alamance is relatively small, and relatively well connected, Benevolence Farm is uniquely positioned to bridge the cohesive subgroups in this network. The Farm is already a nonprofit and a farmer, which aligns it with both of the large subgroups in the network. Targeted outreach on the part of the Farm would help to cement this role as a bridge, strengthening the connections between Saxapahaw and Burlington/Pittsboro.

Table 3: Summary of Social Network Analysis Recommendations

	Key Target	Role	Analytical Basis
For Farm Residents	Alex and Betsy Hitt, Peregrine Farm	Mentorship for fruit and vegetable production	Indegree Centrality
	Charlie Syndor, Braeburn Farm	Mentorship for ranching	Indegree Centrality
	Carolina Farm Stewardship Association	Technical Assistance	Indegree Centrality
	Mark Danieleley, Alamance Cooperative Extension	Technical Assistance	Indegree Centrality
	Debbie Roos, Chatham Cooperative Extension	Technical Assistance	Indegree Centrality
	Eric Henry, TS Designs	Retail and nonprofit networking	Indegree Centrality
	For the Organization	Carolina Farm Stewardship Association	High-level Networking; Advertising the Farm and Events; Disseminating Messages
Eric Henry, TS Designs		High-level Networking; Disseminating Messages	Eigenvector Centrality; Closeness Centrality
Charlie Syndor, Braeburn Farm		High-level Networking; Disseminating Messages	Eigenvector Centrality; Closeness Centrality
Mark Danieleley, Alamance Cooperative Extension		High-level Networking	Eigenvector Centrality
Debbie Roos, Chatham Cooperative Extension		High-level Networking	Eigenvector Centrality
The Company Shops		Advertising the Farm and Events; Disseminating Messages	Closeness Centrality; Betweenness Centrality
Haw River Ballroom		Advertising the Farm and Events; Disseminating Messages	Closeness Centrality; Betweenness Centrality
Robin Kohanowich, CCCC		Disseminating Messages	Betweenness Centrality
Eric Jobe, Carrboro Farmers Market		Disseminating Messages	Betweenness Centrality

Conclusions

This report has identified three persistent and interrelated challenges within the agricultural community in Alamance County: marketing, communication, and leveraging local knowledge. Each of these challenges has real implications for Benevolence Farm. Marketing is critical to the Farm and future residents' success as an economic enterprise. Communication with current community members is need to access local resources, build trust, and obtain support in Alamance County. Local knowledge must be leveraged in order to operate efficiently. Benevolence Farm has much to learn from the successes and failures of others in their community. This report begins to address each of these challenges.

Benevolence Farm should address the marketing challenge by considering several different venues for its farm products. The Farm should begin by selling at a Farmers Market. On Saturday mornings, both the Burlington and South Durham Farmers Markets provide the right combination of low barriers to entry, peer-to-peer support, and institutional culture to nurture a growing non-profit farm. The Farm should also consider selling at the Saxapahaw Farmers Market on Saturday evening, where it could greatly increase its presence in the community. One the Farmers Market demand is met, the Company Shops co-op and, in the future, CSA will be important venues for selling excess produce. The Farm also has some clear priorities to address the challenge of communications. Benevolence Farm has worked hard at networking and building a community. However, this networking has not been based on any analysis or strategy. Table 3 presents a roadmap for the Farm's future outreach efforts. CFSA scored highly on each of the metrics of centrality that were examined and is any important place to start outreach.

Leveraging local knowledge, the final persistent challenge, is addressed head-on by a knowledge map. This map identifies and characterizes the knowledge held in the community, organized by the individuals and their geographic location. Understanding where this type of knowledge resides in the community is critical. Not all farmers, for example, have the same skill set and should be seen as

analogous resources. The knowledge map identifies who is best at what and where one should turn for assistance on a specific topic. The map is web-based and accompanies this report.

Entering a new community can be a difficult task, especially a community facing these three challenges. This report has provided the information and analysis that Benevolence Farm requires to address this task head on. Careful understanding of the challenges, resources, and local knowledge is critical for any new nonprofit. The tools and process offered here will hopefully serve as a model for others in the future.

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Appendix A: Interview Guide

We plan to conduct semi-structured interviews. The following guide provides an outline of the information we hope to collect and the general flow of the conversation. The guide may be modified in minor ways based on initial pilot interview experience.

Introductions

- Purpose of study
- Background information on our client, Benevolence Farm
- Contact information - what is your address, email, and phone number?

Farming Operations

- Tell us a little about your farm or business.
 - What do you grow or produce?
 - Where do you sell your goods?
 - How long have you been doing this?
 - What inspired you to enter this line of work?
- Challenges and opportunities
 - What have been some of your biggest challenges?
 - How did you learn to overcome these?
 - Who helped you?
 - What advice would you offer someone entering this line of work?
 - What qualities and capabilities do you look for in a colleague/peer?

The Agricultural Community in Alamance County

- Who do you go to for information in the agricultural community here?
- What resources were particularly important when you were starting your farm/business?
- What organizations have been important to your success?
- What kind of resources would you feel comfortable offering as a mentor to others?
- Who else should we talk to?