

THE ROLE OF EMERGING FARMERS' PERSONAL NETWORKS IN MARKET ACCESS AND
START-UP FARM SUCCESS

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ABSTRACT

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The Mid-Michigan local food system harbors a wide variety of local farms ranging from new to long established operations. Market access plays a key role in the sustained success of these farms, particularly emerging farmers. The study examines the personal networks of Mid-Michigan's emerging farmers and identify characteristics of farmers with differing backgrounds as they relate to their market access decisions. The study examines the social ties among farmers through the use of network analysis and measures of social connectedness. Study findings yield insights into the relationship between social networks and market access among emerging farmers in Mid-Michigan, and the factors contributing to the sustainability of the farmers' operations. Through analysis and comparison of long-term indicators of likely success, entrepreneurial farming aspects of the incubator farm program's participants emerge. Farmers identify what it means to know the ideal market facilitators to enter the local food economy. The study then examines what that means for their individualized definition of success and what these networks represent to each individual farmer, farmer groups, and the incubator program as a whole.

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This thesis is dedicated to my lovely wife, Michelle.

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1. Introduction

Mid-Michigan's food system has undergone a transformation in recent years to harbor a new era of local food and small farm proliferation. Local market opportunities for small farms have changed dramatically of late. The "good food movement" has affected the local food system landscape in the form of many high profile marketing opportunities for local, organic, and sustainable food operations. New market avenues have emerged though the expansion of "farm-to-table" restaurant business models, the creation of a regional food hub, the abundance of farmers markets, the increase in local food purchasing from large institutions, and the rise in sustainable, organic, and local food retail outlets. The rise in potential market opportunities coincided with consumer demand and public awareness for sustainable and local food (Kloppenburger et al., 1996).

Food producers have adopted and promoted the ideals of the "good food movement" within the local food system. Within the Mid-Michigan area Michigan State University (MSU) and Greater Lansing Food Bank (GLFB) created and expanded programs such as MSU's Student Organic Farm and GLFB's Garden Project. These endeavors are further supported through funding initiatives such as the Michigan's Emergency Farmers-Strategies And Tools To Enhance Success project, the Regional Food Systems grant from the Michigan Department of Agriculture and Rural Development, and a Beginning Farmer Rancher Development Program grant administered by the United States Department of Agriculture. The later initiative supports a growing area of emphasis in this recent shift towards the political and health ideals of "good food" in that it supports the creation of an incubator farm program "designed to help limited resource and/or historically underserved individuals from the greater Lansing area begin successful market gardening and

farming enterprises through an incubator farm setting” (Greater Lansing Food Bank, 2015).

The incubator farm is a program known as Lansing Roots and it represents a growing opportunity for inclusion and collective participation in the local food system. Lansing Roots seeks to aid a new kind of emerging farmer that previously may not have been a producer in the local Mid-Michigan food system, and specifically focuses on traditionally underserved and vulnerable populations. Lansing Roots specifically outlines its desire to introduce new farmers into the local economy through active marketing strategies.

Social networks play a key role in providing access to the local market for beginning and established farmers alike. Beginning farmers often face barriers to accessing the local market. As such, beginning farmers frequently have limited personal networks, which hinder their ability to market their products within the local food system. Efficiently navigating personal networks through relational skills plays a key role in farm business success (Flora et al., 2001). Within a local food system, market access and targeted sales are a crucial component in sustainable operations for small farms. This study aims to analyze the marketing and personal networks of emerging farmers and examine key aspects and characteristics of these networks. These aspects include density, diversity, centrality, tie strength, and size. The personal nature of the study emphasizes a farmer-centric conceptualization of networks in that the center of analysis of the interview questions and data analysis centers entirely on each farmer as a unique entity.

The stated objective of this study was to examine the social networks of farmers in an incubator farm setting to better understand the roles that the networks play in facilitating access to markets and start-up success in farming. A goal of Lansing Roots is to provide support for emerging farmers beginning their own farm businesses. For the

purpose of this study, the farmers in the program are classified as emerging farmers instead of beginning farmers. This is due to my attempt to reflect the realities of program participants beginning a farming enterprise at the incubator farm, but highlights that participants are not necessarily novices at the practice of farming. Many farmers come from a wide range of backgrounds that include farming in previous contexts. Elements of entrepreneurship come into play for emerging farmers as they set out to start their own farm upon leaving the incubator setting. It is for this reason that the study conceptualizes incubator farmers as emerging farmers in that they are newly incorporated into the local food and farming community and economy through the incubator farm setting. The diversity of farmers that are involved in the program leads to an interesting dichotomy of farmers' personal networks. This dichotomy centers on farmers with experience farming in another country, farmers with experience farming in the local area, and farming novices.

This study seeks to understand the multiple aspects of emerging farmers' access to local markets through the use of approaches from new economic sociology, the practice of examining economic phenomenon with sociological methods, with the individual farmer as the primary unit of analysis. The study primarily draws upon data gathered from eleven farmer interviews. Networking and interacting efficiently within networks is crucial in farm business success (Clark, 2009; Flora et al., 2001). Entrepreneurs often rely heavily on their networks upon the start-up and creation of their businesses (Aldrich, 2005; Aldrich & Zimmer, 1986). The personal networks of farmers are representations of the exchange and prevalence of social capital between farmers and network members. Burt (2002, 150) stated that "social capital here refers to features of social organization, such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated action."

Evidence suggests that social capital plays a key role in a farmers' entrepreneurial success, in that an abundance of social capital and social interaction for entrepreneurial farmers aids in the farmers ability to find economic and personal success and serves to reduce transaction costs for farmers. Social capital can be displayed through farmers' memberships in organizations, association, cooperatives, or through direct communication within their own network (Stinkis et al., 2005). Exchanges in social capital create communication networks that play a key role in models of successful business structure and strategy (Smith-Doerr & Powell, 2005). It is within networks that ties between actors are formed and through those ties that information is exchanged. Important knowledge flows through professional or trade networks (Smith-Doerr & Powell, 2005).

Evidence suggests entrepreneurs having to access information and multiple diverse contacts, regardless of strength, are important for sustained success (Burt, 1998). "A prevalence of strong ties may result in information gathering being limited to local sources (Smith-Doerr & Powell 2005, 390)." Flora et al. (2001, 212) concluded that, "rural areas, and farmers in particular, often are embedded in strong ties with relatively limited networks." Having access to information through multiple and diverse contacts is important for entrepreneurial success, regardless of the specific strength of the relational ties (Aldrich & Zimmer, 1986). Smith-Doerr & Powell discussed these contacts and ties constructing network positions stating, "position within a network both empowers and constrains action (2005, 390)." Often entrepreneurs who occupy impoverished social locations find themselves cut off from emerging opportunities and essential resources (Aldrich, 2005). These limitations were seen to impact entrepreneurs by Swedberg (2003, pp. 124) saying, "without the proper contacts, those are penalized without merit." These

concepts of social location and networks prompted this study, and explore the following questions: how do emerging farmers construct personal networks that help them access markets? How do they maintain these networks? What mechanisms come into play to produce the market avenues? How do these networks vary? And what, if any, are the implications of these differences?

After a deep examination of these questions the study is able to determine that there was no difference in the way in which farmers construct and maintain their networks. The study finds a dramatic difference between advice and support networks indicating large support networks for immigrant farmers and limited advice networks for many Roots famers. The limited advice networks indicated a strong reliance on the Lansing Roots staff in order to obtain market access avenues and selling advice. This was attributed to a myriad of reasons contributing to farming and selling barriers and leading to farm start-up limitations that are highlighted within the study.

2. Literature Review

When people think about social networks they likely may think of the Kevin Bacon six degrees of separation, a game, which maps Hollywood film actors connections to one another through their roles in well-known films. Through the utilization of network analysis the idea of four degrees of separation came about theorizing that every film actor can be linked to another with no more than four ties between them (Faulkner & Anderson, 1987; Watts & Strogatz, 1998). The literature examining this economic phenomenon through a primarily social perspective has provided a broad base to which this study contributes. Granovetter (1973) stated that economic activities are not simply embedded in social relations, but rather in social networks. Scholarship around economics and network analysis took a great leap forward through the work of Granovetter in the early 1970s when he examined the “Strength of Weak Ties” which highlighted the need for weak ties and diversity in networks (Granovetter, 1973). He went on to examine the dynamics of personal networks in obtaining employment. He saw a person who knows two others in the network and when the two others are strangers to each other; the individual who knows both of the strangers is in an advantageous position in the network (Granovetter, 1974).

White (2002a) conceptualized markets in the form of networks in his W(y) model for examining markets through network equilibriums. He conceptualized markets as consisting of two sides: buyers and sellers and saw markets as tangible social structures encompassing sets of producers that have equivalent specific role behaviors toward one another and toward an accustomed set of buyers (White, 2002a). The social structure of a market has an impact on the way the market operates (Baker, 1984). He looked at vitality

in option prices and found small networks has less market viability due to their density (Baker, 1984). Other scholars have outlined the analysis of markets from networks, expanding upon economic sociological concepts (White, 1981; 1988; Leifer & White, 1987; Berkowitz, 1988; Burt, 1988; Burt, 1992; White, 2002a; White, 2002b; Swedberg, 2005b). In the context of this study, these scholarly works serve to highlight the different dynamics associated with market access.

The view of markets as networks and market access as network access has led to a wide array of literature focused on entrepreneurship, firms, and start-up businesses. Leifer and White (1987) used network theory because the “Structural model pulls the producer out of mythical information setting in which everything is known and has the individual entrepreneur seeking guidance purely on the basis of the observed outcomes for all the producers in his/her market in the prior production period” (pp. 303). Uzzi (1997) examined embedded and close or special relationships and noted that they are important when trust and fine-grained information were crucial. He went on to state for businesses to be successful, they must have embedded and market ties, and that the ties must be balanced. He saw economic actors as neither selfish nor altruistic. This led to studies focused on, specifically, entrepreneurial networks (Reynolds & White, 1997; Thorton, 1999; Sexton & Landstrom, 2000; Swedberg, 2002; Shane, 2002; Texeira & Landstrom, 2004; Aldrich, 2005). Within the context of this study, this literature serves to preface the emerging farmers’ economic activities as entrepreneurial enterprises. Scholars have examined the ties within entrepreneurial personal networks, theorizing that weak ties are important over time and strong ties are important to start-ups in their infancy stage of their business (Witt, 2004). Witt (2004) theorized smaller networks are less effective for

insuring the success of start-ups. Uzzi (1997) examined the relationships between CEOs and noted the idea of “business friendships”. The analysis saw “arms length ties” occur at greater frequency but less significance than stranger ties. This was important because the frequency of the ties reflected important information transfers. Swedberg (2005) expanded upon this idea stating, “Actors may use social relationships to identify and access the reliability of potential transaction partners to whom they have no direct or close indirect social ties” (pp. 302). In contrast, actors use relationships with whom they already know within network exchange. This concept then was applied in an entrepreneurial setting when Kremer and Talamini (2013) examined interorganizational growth within small business owners. They found that small business owners learn through networks by following a set of conditions. The conditions were found to be: 1) limited internal resources; 2) dependence on external factors; 3) economic and social development in the community; 4) reducing uncertainty within the environment, and; 5) cooperative behavior with other network members (Kremer & Talamini, 2013). This study expands upon the literature of start-up enterprises and entrepreneurial activities. This is particularly relevant in this study of the Lansing Roots incubator farm as they work to include vulnerable and underserved populations, we also note the theory of Granovetter (1974) stating immigrants who may not have been particularly entrepreneurial in their home country, often are in a foreign environment.

Network analysis for farmers and agriculture has mostly been focused on the networks of smallholder farmers in developing countries. Studies have examined a variety of issues from food security (Obaa, 2011), the ways in which innovation proliferates amongst farmers (Spielman et al., 2000; Wu & Pretty, 2004), and how technology adoption

spreads amongst farmers (Moser & Barrett, 2006). A foundational study focused on social learning used social network analysis to examine the adoption of new pineapple cultivation techniques in Ghana (Conley & Udry, 2006). Other studies looked specifically at adoption of seeds and smallholder technologies (Matuschke & Qaim, 2009). Bandiera and Rasul (2006) expanded upon this sociometric method by finding social learning in adoption is a non-linear process that is variable to local constraints presented within each agricultural system and unique setting. These findings have led to examinations of farmer field-to-school models of information sharing and collective learning (Barrett, 2005).

Additionally, there is a rich body of literature focusing on emerging farmers, entrepreneurship, and market access. Various studies have focused on entrepreneurs' social performance; Foroni et al. (2002) identified that performance requires access to finance and information related to the structural dimension of social connectedness that helps the entrepreneurs access markets. Ashby et al. (2009) found equitable access to markets is critical for vulnerable farmers long-term success. Van Rooyen et al. (1987) focused on small farms and found farmer support programs to be crucial in farm success. Bingen et al. (2003) linked farmer success to access to programs that target small farms and highlighted new farms as benefiting tremendously from targeted programs. Numerous studies have focused specifically on the effects of social networks on farmers and their entrepreneurial success, indicating the importance of networks in start-up success (Muller et al., 1989; Ponchelet & Muller, 1999; Cazella, 2001; Purseigle, 2003). Other studies have focused on the importance of networks for start-up resources access, information accessibility, and risk management (Rogers, 2006; Jenssen & Keonig, 2010; Francis, 2013). Hassanein (1999) further examined beginning farmers access to information and resources

through networks amongst cattle grazers in Wisconsin. Luthans and Ibrayeva (2005) drew further conclusions about new entrepreneurial success by indicating the importance of self-efficacy and modeled behaviors.

One farmer network study conducted in Pennsylvania used a network approach to display women farmers political agency in the food system and demonstrated clear boundaries for women farmers as it related to the types of ties within their networks (Trauger, 2005). Another study conducted by Emery and Flora (2006) examined the parameters in the new local economy through the context of social capital exchanges. They found that both bridging and bonding social capital are a critical resource in creating positive aspects of hope in a local economy. Krebs and Holley (2006) utilized network analysis to examine economic opportunities created in a grassroots food industry setting in Southeast Ohio. They highlight unmanaged social or business networks tend to follow two primary driving factors: homophily and closeness affinity. They found a strong reliance upon network hubs or network weavers, roles as defined in this study as boundary spanners, within small food industry businesses emerging networks. Anderson (2005, pp. 125) discusses the role of food in decreasing or increasing social barriers by stating, "Food transactions define families, networks, friendship groups, religions, and virtually every other socially institutionalized group. Naturally, one group can try to use food to separate itself, while another is trying to use food to eliminate that separation."

Jarosz (2000) and Murdoch et al. (2000) both utilized the concept of actor network theory to examine social relationships role in the food system. The former study utilized network theory to display the nature of local embeddedness in local food supply chains and serves as a further basis for the analysis of the shifting food production and consumption

dynamic (Murdoch et al., 2000). The latter study determined networks in the food system as being largely based on trust, cooperation, and specific social relationships. These social relationships were found to have key importance for farmers and entrepreneurs in the local food system (Jarosz, 2000).

Strange (1988) examined the issues of the changing agricultural landscape in the United States and discussed in length the de-emphasis of the American societies' reliance on small and/or family farms for the primary source of community and food. The foundational study conducted by Goldschmidt (1978) highlighted the negative economic and social costs to rural communities associated with farm consolidation. He further outlined a multitude of economic and social benefits including more civic engagement, better education, and more jobs in the small farm communities.

Hassanein (1999) calls into question the role of agricultural scientists in guiding principles of agricultural production and food distribution in light of the changing American food system. The relationship between broad societal processes and the food system have been richly examined in the social sciences in fields such as anthropology (Mintz & Du Bois, 2002). Expanding upon these ideals we see an emphasis on local food that ties the changing food system to an active engagement process related to place making and social interactions that move relationships in the food system away from the consumer-producer dynamic and into fostering connections to the places and people that we as a society identify as home and are familiar with (DeLind, 2006). Winter (2003, pp. 29) discussed the model of embeddedness in the context of new local food economies. The concept was demonstrated through an emphasis on what he deemed "local defensive politics" demonstrating an affinity for locally produced food instead of quality-based

products ascribed to social drivers for consumer preferences. This then further highlights the role of social connectedness in the changing food economy and serves to contextualize the study and the work being conducted by the Greater Lansing Food Bank at the Lansing Roots program. This study expands upon this wide body of literature to examine issues surrounding emerging farmers' personal networks and market access.

3. Conceptual Framework

3.1. Approach

In order to address the questions above the study focuses on examining an economic phenomenon in markets through a social perspective. That is, observing potential market exchanges through a social lens. Examining market access and personal networks of farmers requires building upon the ideas of Harrison White (White, 2002a), who identified markets as social constructions. This study relies upon principles of new economic sociology; which has been described as a sociological perspective applied to economic phenomenon (Smelser & Swedberg, 2005). New economic sociology operates around the three core principles: 1) Economic action is a form of social interaction; 2) Economic action is socially situated or embedded; 3) Economic institutions are socially constructed (Granovetter & Swedberg, 2001). New economic sociology fits the scope of this study through the view of social relationships as an intrinsic part of the formation of tangible markets (White, 1988). The concept of networks is especially useful in the sociological analysis of the economy because it is very close to both concrete social and empirical reality, and its use thereby prevents conceptual errors in mainstream economic theory (Granovetter & Swedberg, 2001). This assists in avoiding the problems associated with the assumptions of rational self-interest from mainstream economic theory.

A network, as described by Smelser and Swedberg (2005), is a set of actors with specific types of connections to one another. The idea that social relations are crucial to the economy has been amply proven and that network analysis, in particular, is a very useful tool in this context (Smelser & Swedberg, 2005). In examining the networks between producers and consumers, White (2002b) identified all markets consist of these two sides

(buyers and sellers) and identified markets as tangible social structures encompassing sets of producers that have equivalent specific role behaviors toward one another and toward an accustomed set of buyers. This study found that it is important to explore the conditions in which buyers and sellers come together to sustain market transactions.

In order to understand the terms and concepts of network analysis an individual must gain an understanding of the basic terminology. An actor is the unit of analysis and a person within the network. A relational tie is a linkage between two actors. A subgroup is a set of multiple actors. A relation is collection of ties. An ego-centric network consists of a focal actor (ego) as a set of alters who have ties to the ego. It is often referred to as personal network data. An alter is an actor tied to the ego. A node can be conceptualized as a person in the network (Wasserman & Faust, 1994).

Swedberg (2005a) viewed markets as tangible cliques of producers watching each other while focusing on the terms of trade. It is for this reason that the study chooses to focus on the personal, or ego networks of emerging farmers and the connections between those individuals, similar to the practice outlined by Witt (2004) when examining entrepreneurs. The study maps intensely social structures on a microeconomic scale and describe patterns of resource access that are closely associated with questions of network form and market activity. The mapping occurs through the utilization of social network analysis examination of farmers' personal networks, farmers networking activities, farmers network costs and benefits, and analysis of long-term farm success indicators.

From a strategic viewpoint, a network that is composed of homogenous ties is of limited value to an entrepreneur (Granovetter, 1974). An analysis of a networks ties leads to the development of social bridges when the social ties span across sectors, or when

redundant ties are identified between similar actors (Smith-Doerr & Powell, 2005). Weak social ties bridge groups to access new information. A social tie generates information benefits when it bridges a structural hole (Burt, 1992). Guillen et al. (2002) theorized “Entrepreneurs do not just passively fall into situations where there are holes to bridge” (pp. 11). This suggests that the relationships within networks matter and are socially constructed and not randomly occurring. Structural holes exist, in this context, when network alters linked to the central entrepreneur are not themselves tied to one another (White et al., 1976). Network alters are defined as the individuals within a network that are connected to the central actor, or ego. Structural holes are the natural borders in social space and therefore lead to the idea of structural equivalence in a network (Smith-Doerr & Powell, 2005). This framework calls for an examination of informal linkages between individuals within the emerging farmers’ ego network. Informal in this context is a link between individuals that is not defined by a formal transaction but rather by a human connection centered on the individuals 1) from whom the farmer asks advice; and 2) with whom the farmer celebrates successes with. This is of significance because informal relations serve as the lubricant for economic exchange (Larson, 1992; Gulati & Garuilo, 1999).

3.2. Application Of Theory

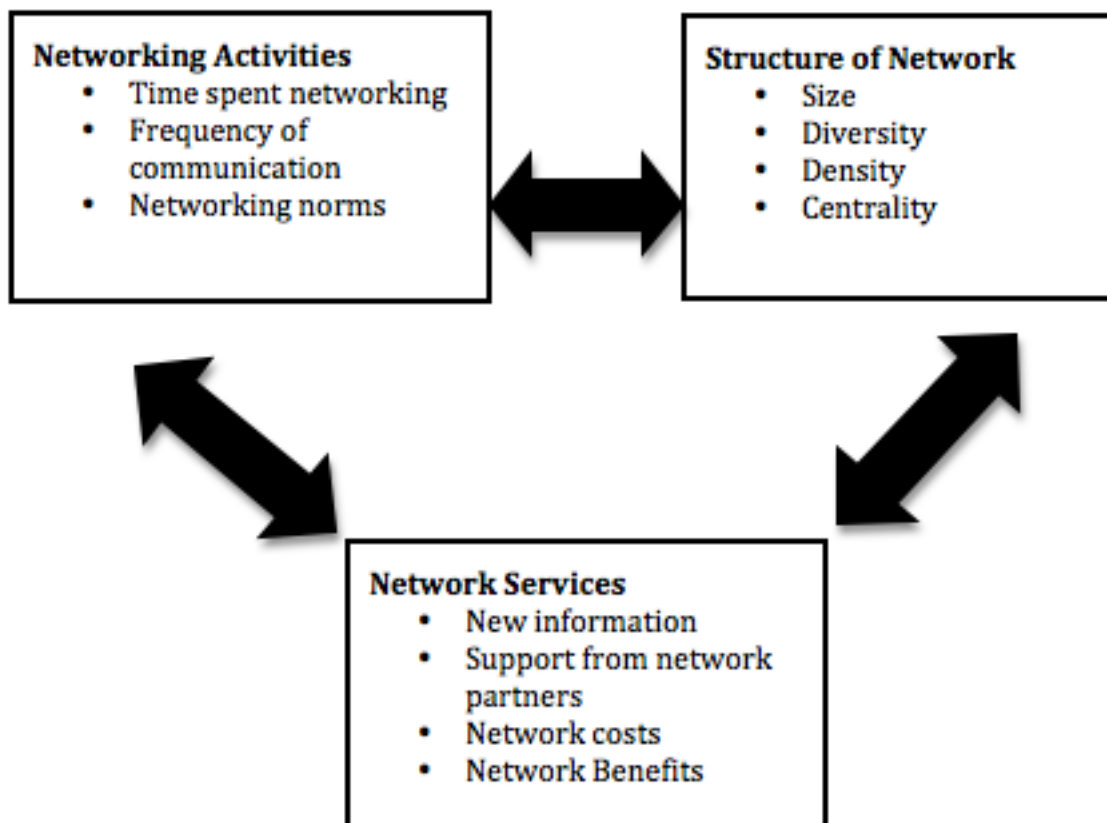
The study analyzes farmers’ personal networks and access to the local markets through the application of the framework developed by Witt (2004) for examining entrepreneurs’ networks and the success of start-ups. Initially, the study measures the aspirations and demographics of the emerging farmers in order to contextualize the study

and to identify exactly what success means to the farmers in this specific context. Following Witt (2004), the study focuses on the ego-network as the unit of analysis being the individual farmer, specifically, the personal farmer networks center on market access. That is, with whom emerging farmers discuss selling products, celebrate selling milestones, or ask for advice about marketing (Mailfert, 2007).

The study used selected indicators for emerging farmers' entrepreneurial networks through three levels of observation as adapted from Witt (2004). The first is networking activities, which measures the amount of time-spent networking. For the purpose of this study networking is defined as the expansion and maintenance of the emerging farmers' personal network. Networks are not given but rather they are constructed. Therefore it is necessary to examine the central actor's role in investing in his/her own network (Bourdieu, 1986). The measurement of personal network construction and maintenance is the time spent networking in terms of the frequency of communication with network members and the time spent pursuing networking activities over the course of a month or week. The second is analyzing network structures, that is, structural characteristics of the farmers' personal networks as to measure the results of those networking activities. The measurement of these structures was achieved through the examination of network characteristics based on four indicators: size, density, alter degree centrality, and tie dynamics. Size is defined as the number of individuals within a network. Density is defined as the measurement of how closely knit a network is, empirically defined later. Alter degree centrality is defined as the extent in which an alter is connected to other actors within a network. Tie dynamics are defined in the study by tie strength (family, friend, professional associate, and acquaintance) and alter degree. The third level of observation is

a natural progression in the form of analyzing the benefits received from the network. Analyzing the benefits received from the network measures the economic and personal benefit of information and services received from the network through questions aimed at the farmers' beliefs about benefits and the value of the contacts established within the market. This is conceptualized in Figure 1.

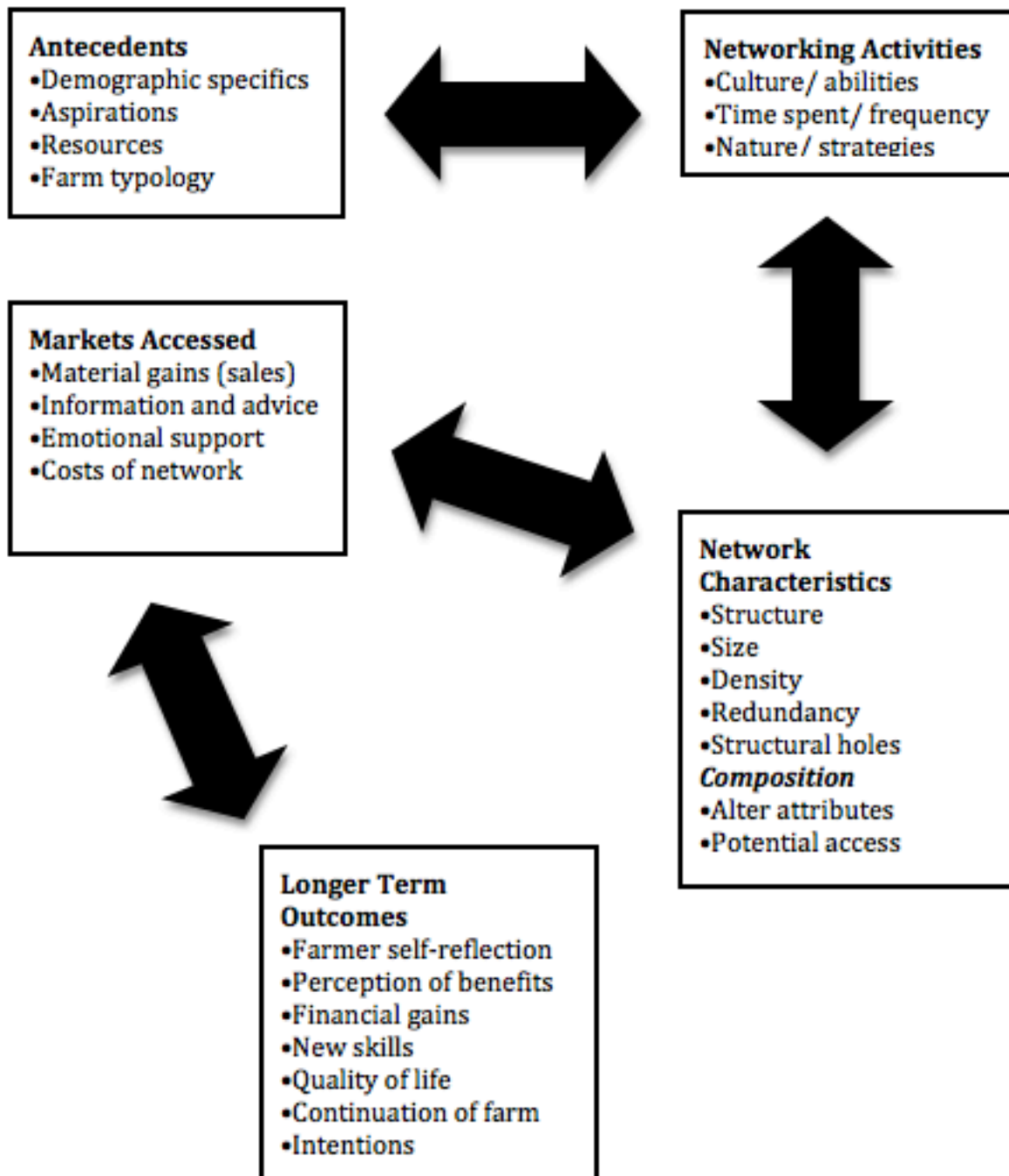
Figure 1: Entrepreneurial Network Dynamics. Adapted from Mailfert, 2007, Figure 1, pp. 25.



These three levels of observation of the farmers' personal networks serve to build upon each other to aid in the measurement of the success of the emerging farmers' entrepreneurial activities. Indicators of farm success can be conceptualized in a variety of

ways including land area, changes in land area, funding, living standard, and farmers opinion of farm viability (Stinkis et al., 2005). Beyond indicators of farm success Witt (2004) suggested measures of nascent entrepreneurs success in the form of completing the planning process, the business founder's satisfaction, and the business' persistence in the market. This is increasingly important as successful businesses work due to the creation of a pattern for success (Leifer & White, 1987). For this reason this study inquired about market access instead of taking a limited approach of strictly analyzing an emerging farmers buyer and seller network. The study drew conclusions from the entrepreneurial network based on selected indicators and identifying patterns in human interaction. These indicators and steps have been adapted from Canada (2003) and Witt (2004) to form the following conceptual framework diagram (see Figure 2):

Figure 2: Emerging Farmer Personal Networks: Analytical Framework (and selected indicators). Adapted from Witt, 2004, Figure 3, pp. 406.



Within the above figure the five aspects of nascent entrepreneur's network dynamics are conceptually utilized for the study's framework. The five aspects serve to

build upon each other at each level throughout the framework. The first being antecedents that serve to lay the foundation for examination and contextualize the study. The second, networking activities seeks to examine how these networks are constructed and maintained. The third aspect, network characteristics, allows the study to examine the distinctiveness and structure of each farmer's personal network. The study utilized these measurements of network characteristics to tell a unique story for each network examined in the study. The next aspect of the framework serves to build upon the idea that we see how the networks are constructed and maintained, and their characteristics, and now the study examines what the benefits and costs of these networks are to the farmer. Finally, the longer-term outcomes enter the framework to bring these previous aspects together and see what the farmers identify as what this all means.

The study sought to measure success through asking emerging farmers' about their perceptions of success through the utilization of the self-reflection method (Gist & Mitchell, 1992). This allows for a candid examination of longer-term farm outcomes and sheds light on emerging farmer self-efficacy as it relates to market access and farm success. Self-efficacy in this context is particularly important due to its focuses on perceptions and assessment of self with regards to competence, effectiveness, and a casual agency (Gecas, 1989). Empirical evidence further suggests that self-efficacy plays a role in improving work performance, learning, achievements, adoptability, and is crucial for success in new entrepreneurial enterprises (Gist & Mitchell, 1992; Luthans & Ibrayeva, 2002).

Empirical evidence suggests entrepreneurship requires linkages or relations between vital components of the economic process (Aldrich & Zimmer, 1986). Smith-Doerr and Powell (2005) stated "The performance of firms can benefit from network ties in the

form of access to information and resources, more rapid product development and enhanced innovation” (pp. 389). Building upon the idea of identifying networks in the economic process, Burt (1992) states “opportunities (for success) spring up everywhere, valuable items entering the market for which you know interested buyers. The information benefits of a network define who knows about these opportunities, when they know, and who gets to participate in them” (pp. 330). Specific characteristics are examined in the context of entrepreneurial personal networks that lend themselves to success study’s determined indicators for success. Within the selected indicators for the second level of observation the importance of measuring the metrics of existing networks structure in empirical literature emerge. Witt (2004) identified network density and size as indicators for success. He identified weak ties as being important over time and strong ties as important in the beginning of a start-up. Strong ties were important for identifying help and maintaining a personal network (Witt, 2004). Strength of ties is dependent on level, frequency, and reciprocity (Aldrich & Zimmer, 1986). Uzzi (1997) viewed embedded and close or special relationships as important when trust and fine-grained information are viewed as important. For businesses to be successful, emerging farmers must have balanced embedded and market relationships (Swedberg, 2003). The diversity of a network is of particular importance in the contemporary literature. Diversity is enhanced by ties to people in different social locations (Burt, 1998). Diverse networks create favorable social locations for entrepreneurship and lead to a prevalence of brokers. Brokers can bridge structural holes for entrepreneurs and facilitate connections (Aldrich, 2005; Renzulli & Aldrich, 2002). Poorly connected entrepreneurs are able to bridge gaps by contacting brokers (Aldrich, 2005). Emerging farmers who bridge connections to

various and diverse groups give them an advantage to accessing information. Farmers with many bridge connections reach a higher volume of information because reach more people indirectly and harbor more nonredundancy within their network. Diversity of contacts leads to new discussion and to spatial dispersion and increase market entry point diversity (Mailfert, 2007).

The strength of ties may, in fact, be less important in the network composition than the nonredundancy of the ties (Burt, 1992). Nonredundant ties provide different forms of network connections, thus leading to new avenues for information, resources, and market access (Burt, 1992). Examining the ties and actors in a network can lead to developing socially situated and ego-centered role-sets through the examination of brokers, network ties, and centrality (Aldrich & Zimmer, 1986). By examining the roles and ties that actors are positioned in, it is possible to examine network actors who occupy structurally equivalent locations across different farmer networks. This examination can be a useful estimator about what network actors know, resources which they have access to, the social constraints on their behavior, and how they are likely to think and act (Wellman & Berkowitz, 1988). It is through this examination and analysis that entrepreneurs can take steps to improve network position (Aldrich, Elam, & Reese, 1996; Larerson & Lorenzoni, 1996).

4. Methods

Within this study an ego-network approach has been adopted to analyze the emerging farmers' personal networks. An ego-network approach enables emerging farmer subject to identify all of the actors with whom they have a connection in relation to a specific pre-identified question (Hanneman, 1997). Eight interviews were conducted in English and three interviews were conducted in Nepali with the assistance of a translator. The study utilized both quantitative and qualitative methods for data analysis to display the results from eleven interviews that were conducted between June 26th, 2015 and October 3rd, 2015 with farmers in the Lansing Roots program. In this context, each farmer's unique experience was the interview's point of emphasis. Farmer perceptions play a key role in identifying what the success of the farm truly means to farmers and also identifying issues of self-efficacy around market access and long-term farm viability. This study also deploys the use of social network analysis to measure network characteristics and structure. Social networks can be described as a set of actors and ties or relations among them (Frank, 1998). Social network analysis is concerned with relationships among social actors and the patterns and implications of those relationships (King, 2003). Frank (1996) highlighted the usefulness of studying social networks in a small confined system, and suggested, "small bounded networks are ideal for studying social networks" (pp. 99). This displays that the study's network approach was well suited to the networks of emerging farmers.

This well suited approach continues with the handling of data once the interviews were completed. Interviews were conducted wherever the farmers' found it to be convenient and they felt comfortable. Most interviews were conducted on the Lansing

Roots farm; others were conducted in farmers' homes and offices or local coffee shops. Interviews took between 30 minutes to two hours and were recorded by the interviewer and researcher, for future transcription. Interviews conducted with the assistance of a translator were translated directly at the interview site in audio form. Interview guides can be found in Figures 27 and 28. Interviews were then transcribed verbatim for an initial phase of data analysis. From there, an initial scrubbing of all indefinable information within the transcriptions took place. It is in this phase that farmers were assigned a numerical code and individuals named in farmers' networks were assigned a lettered code. Next, the network composition transcription information was removed with the assistance of interview guide notes to create network rosters and relationship matrixes. These rosters and matrixes were then analyzed and a sociogram for each network was created along with the calculation of network measures. Full transcriptions were then coded as they related to each question in the interview and prepared for display in the results section of the study document. Finally, key quotes were highlighted for inclusion into the final study display and integrated into the study's results and conclusions.

A key informant interview was conducted with a key Lansing Roots staff in order to contextualize data and inform the study. The roughly one hour-long interview was recorded and transcribed. The key informant interview served to highlight the incubator farm program intentions, plans, and stated objectives.

4.1. Qualitative Methods, New Economic Sociology, And Social Network Analysis

4.1.1. Qualitative Methods

Qualitative methods rely less on numerical measures (as used by quantitative methods) but rather analyze participants based on the information and insight that they possess to actively contribute to the research process (Patton, 2002). Qualitative methods are often used to capture a more contextual and in-depth examination of a particular defined population, thus allowing for candid interactions with participants (Chung, 2000). Brinkmann and Kvale (2015) argued that qualitative research enables the research project to be more thorough in its analysis despite a relatively low sample size. Qualitative methods enable projects to be more accessible to participants and they are more feasible for completion (Brinkmann & Kvale, 2015). Furthermore, qualitative research allows for a more culturally appropriate method of study that takes into account social and cultural contexts in its analysis (Brinkmann & Kvale, 2015). For the purpose of the study, qualitative data was collected in order to attempt to capture the unique perspective of farmers. Interview inquiry concerns questions of the human experience and is therefore found to be highly suitable to analyze farmer's perceptions of their own networks as it relates to market access (Brinkmann & Kvale, 2015).

Structured interview guides were adopted loosely from the principles outlined by Brinkmann and Kvale (2015). The farmer interviews were structured in question classifications that align with the study's five stages, which have been outlined in the conceptual framework: 1) The first section consisted of introductory questions and was aimed at capturing antecedents, farmer demographics, aspirations, and typologies; 2) the second section was aimed at capturing farmer networking activities, such as how

customers are met and how much time is spent networking; 3) the third section was designed to capture the farmers personal network characteristics and boundaries centered around three main questions; 4) the fourth section allowed for the examination of the network benefits and costs; 5) and the final section allowed for the examination of the longer-term outcomes of the farm and the emerging farmers network. The three network characteristic questions focused around advice networks, support networks, and hypothetical ideal selling networks. The advice question was, "Who do you discuss or seek advice from when marketing and selling your products?". The support question was, "Who do you celebrate selling and farming milestones with?" And then an example of a milestone was provided such as starting your own CSA or having a particularly good crop harvest. And the hypothetical network question was, "Who do you think it is important to know for local farms to sell their products?"

The study included alter relationship questions, probing questions, and specifying questions in order to properly understand the respondent and contextualize the information being recorded. The construction of the interview guides and interviewing principles are adapted from Kvale and Brinkmann (2015) and Rubin and Rubin (2012). Alter relationships questions were pursued to examine if the individuals named in the farmers network know each other and, to the best of the farmers' knowledge, the nature of their relationship.

Interviews are the preferred data collection method for ego-centered networks (Wasserman & Faust, 1994). The study utilized the steps of ego-centered network interviews outlined by Wasserman and Faust and utilized interview questions to build a network conceptualization in accordance with suggested principles outlined by Uzzi

(1997). Within the outline, collecting data based on five steps were pursued. The first required the attributes of the ego to be collected. The second involved the name generator approach to be pursued to generate a list of alters. Name interpreter questions followed to assess the ego's relationships with the alters. After concluding the ego centered questions pertaining to the study, the ego was then asked questions regarding each alter in the form of alter basic demographic information, how long the ego has known the alter, how the farmer knows the alter, and what role/job the alter plays in the ego's network. Finally, alter relationships amongst other alters and the ego were recorded to determine the network connections.

4.1.2. New Economic Sociology And Social Network Analysis

In the study, the social structure of emerging farmers' market access is examined. Network analysis views human relations as the basic unit of social structure (Wellman & Berkowitz, 1988). Social structures can be represented as networks and social network analysis is an intellectual tool to study social structures (Wellman & Berkowitz, 1988). According to Wasserman and Faust (1994), "the methods of SNA provide formal statements about social properties and processes" (pp. 11). Networks influence how an individual behaves and how others in other roles should behave (Dobbin, 2004). These networks can be displayed in a visual representation called a sociogram, with the goal to represent patterns in complete social network data in simplified form to reveal subsets of actors (Wasserman & Faust, 1994). It can also be described as sets of nodes (or social system members) and sets of ties depicting their interactions (Wellman & Berkowitz, 1988).

4.2. Context And Site Selection

When examining the context of the study it is important to be aware of the challenges that that conducting research in this unique setting presents. Guillen et al. (2002) said, “Network research on entrepreneurship will have to overcome the challenges of comparing successful entrepreneurs with failed entrepreneurs (or people who never attempted entrepreneurial careers) and the challenge of comparing holes of them” (pp. 19). This showed the challenge that is faced when examining nascent entrepreneurs as a unique phenomenon being that they are an unknown unit of analysis having not yet failed or succeeded in their businesses. Smith-Doerr and Powell (2005) went on to say, “Networks represent informed relationships in the work place and labor market that shaped work related outcomes. Social ties and economic exchange can be deeply interwoven, such that perspective activity becomes ‘entangled with friendship, reputations, and trust’” (pp. 379). They showed how these normally economic rationalizations are engrained in the everyday social aspects of human life and how networks seek to capture this reality. This leads to the focus on the farmer as the individual level of analysis as an egocentric or personal network focal point. This provides views of networks from the perception of individuals at their centers and allows for the types of relationships in the network to be self-defined (Wellman & Berkowitz, 1988). It is because of this focus that emerging farmers as producers to choose from a set of socially defined market roles (Dobbin, 2004). This allows for the farmers to be viewed as entrepreneurs who take steps to improve network position (Aldrich, Elam, & Reese, 1996; Larerson & Lorenzoni, 1996). The Lansing Roots incubator program is a unique context because it is training emerging farmers and providing them with resources in which to begin their own farm business. These emerging farmer

personal networks yield insights into the entrepreneurial realities of these budding businesses and their market access. It is also important for the study to contextualize the study results through the examination of what success means to each farmer. All farmers have their own unique aspirations, plans, goals, and definitions of success and part of this study is to categorize these different contexts for each set of farmers.

4.3. Respondent Selection And Data Collection

When pursuing data collection it is important for the network analysis researcher to clearly describe and identify the population under study (Wasserman & Faust, 1994). Within this study the set and defined boundary is the emerging farmers and their immediate network. For ego-centered networks, open-ended interviews are the recommended method of collecting data (Wasserman & Faust, 1994; Swedberg, 2003). The study utilized an interview guide for the purpose of collecting data for the study in qualitative and quantitative forms. For the structure of the network questions, free versus fixed choice questions presents a unique opportunity. Free choice questions allowed the actor to name the choices, while rank order ties measure tie strength (Wasserman & Faust, 1994). Within the study, free choice method is employed in an attempt capture the emerging farmers' perspective without limiting options. The interviews were recorded, transcribed, and analyzed using qualitative and quantitative data analysis. Three interviews were obtained with the assistance of translation services.

4.4 Analysis

When examining the data from the interviews the information can be conceptualized with qualitative and quantitative methods of analysis. Farmers' personal networks are depicted through quantitative displays, such as network descriptive statistics and tables, and sociograms (Kremer & Talamini, 2013). These networks can also be displayed through focusing on the individual farmers responses and displaying data through quotes and thematic trends (Mailfert, 2007). The study analyzes the data through the use of both methods and display the dynamics of emerging farmers' personal networks in a unique and comprehensive manner. The context of each interview, combined with the specifics of each interview yield telling insights into each farmer's personal network and the incubator farm program as whole.

4.4.1. Thematic Analysis

The thematic analysis of the interviews as data began by examining antecedents for the farmers' personal networks. Demographic characteristics, both similarities and differences, across the farmers were compared. The farmers' households, occupations, and progress in the Lansing Roots program were also examined. Farm typology, as defined by each farmer, interview questions were used to further understand the contextual factors surrounding the farmers and their networks. The questions began with "Can you tell me about your farm?" and progressed into follow-up questions "What do you grow?", "How do you farm?", "Who works on your farm?", "How large is your farm?", "How long have you been farming?", and "Where did you learn about farming?". The next thematic analysis of the interview is focused on farmers' aspirations. This includes questions about the

farmers' own perceptions about market access and their farms as a business. Issues of self-efficacy are largely outlined in this portion of the interview and can help contextualize any information that is further obtained in the proceeding sections of the interview.

Additionally, an important thematic distinction within the first section of the interview is the concept of the farmer defining exactly what success means for them. This allows for a candid analysis of farm success and longer-term farm outcomes to take place from the start of the interview and analysis. Success can be defined in a variety of ways and farmers' responses were categorized into appropriate groups of market oriented farmers, production oriented farmers, and any other group that may apply.

Within the second section of the interview, a thematic analysis of the farmers' networking activities is necessary to establish the first step in understanding the farmers' entrepreneurial personal network. Thematic analysis of this section requires cataloging the precise time spent networking, networking strategies, and the networking culture and abilities of the farmers. This serves as the initial building block for examining the farmers' entrepreneurial network (see Figure 1). Further thematic analysis of the farmers' own perceptions and attitudes around networking activities serve to further contextualize the concept of the personal network and allow the study to display farmer networking activities and ideals through the farmers' own voice.

Within the third interview section, the thematic analysis extends to an examination of the ties and relationships between the farmers' personal networks. Analyzing the qualitative aspects of the farmers' personal networks allows for the examination of the nature of each network as a unit in and of itself. When analyzing the networks a measure of similarity and differences between actors can be utilized to examine the structure of the

networks. Leifer and White (1987) saw structural analysis as the limiting factor for positions within networks. They saw relationships as more vital in influencing individual action than information and attitudes. Through the use of structural analysis we can make classifications of the actors within the network can be classified into isolates, clusters, and cliques (Wellman & Berkowitz, 1988).

Through this structural analysis we can examine network positions and roles (Burt, 1976). A role can be defined as a pattern of relations, which is obtained between actors or between positions (Wasserman & Faust, 1994). A position in a network is the specified set of relations to and from each actor in a system (Burt, 1976) or a collection of individuals similarly embedded in a network (Wasserman & Faust, 1994). This structural analysis leads to the idea of structural equivalence when identifying roles and positions within networks. Structural equivalence is the idea that properties of subsets of actors in a network can be structurally equivalent actors and have identical ties to and form principle actors (Lorrain & White, 1971). Structural equivalence harbors notions of social position in social roles (Wasserman & Fust, 1994). The roles can be socially situated and centered on the individual who is the center of the analysis, which is ego-centered analysis. This can create a collection of role-sets: brokers, strongly tied actors, and central roles (Aldrich & Zimmer, 1987). It is common for production market networks to produces roles. Frequently, producers define their identities relative to those of other producers (Dobbin, 2004).

Another thematic analysis that the study examines is the relationship that the ties between actors display. This study operates on the assumption that strong ties are different from weak ties and yield different kinds of information for the primary actor, the

emerging farmer (Swedberg, 2003). The strength of the ties depends on the level, frequency, and reciprocity of the tie (Aldrich & Zimmer, 1986). Therefore questions are asked of each network tie regarding frequency and are rated along a relationship strength scale: family, friend, professional associate, and acquaintance. Evidence suggests that weak ties bridge groups, allowing for access to new information (Burt, 1992). Witt (2004) sees strong ties as crucial in the beginning of a start-ups formation and weak ties as playing a larger role over time. Witt (2004) indicates the importance of maintaining these ties and documenting the process through which the entrepreneur creates their networks. Diverse networks as creating favorable social locations for business success (Aldrich, 2005). Burt (1992) argues that the strength of ties is less important than the non-redundancy of the ties. Redundancy of a tie refers to an identical tie within a network. Nonredundant contacts ensure exposure to diverse sources of information because the people connected to one another have access to different sources of information at the same time. This can be measured through a concept called average alter degree, which measures the extent to which a person's contacts are connected within a network (Burt, 1992). The study uses average alter degree to display the redundancy of ties in farmers' personal networks to display the diversity of alter connections within each ego-network.

When a tie is strong or weak, it generates information benefits when it is a bridge over a structural hole (Burt, 1992). A structural hole exists between groups that are not aware of each other but are focused on their own activities. Networks rich in structural holes provide a broad base of referrals (Freeman, 1977). In the discussion of network roles brokers bridge structural holes for entrepreneurs (Aldrich, 2005). A structural hole exists within this study when a broker is situated between two diverse groups (Wellman, 1979).

Advantages accrue to individuals and groups whose networks are rich in structural holes. These holes are the social structure of competition and, in many cases, opportunity (Burt, 1992). This study will seek to find the structural holes within the farmers' ego-networks and identify where they present an opportunity for market access into the local food economy. The thematic analysis of structural holes and the ties within the farmers' personal networks require thematic analysis of the network alter, or farmers network members. Examining the characteristics of these alters, and the ties between them, lead to a more comprehensive picture of the emerging farmers' entrepreneurial network.

Within the fourth section of the study's interviews the final aspect of the farmers' entrepreneurial network, as seen in Figure 1, is examined. The network benefits are thematically analyzed through examining the farmers responses on exactly what they identify to be both the physical and perceived benefits and costs of maintaining and incorporating their own personal network. Thematic analysis continues with the classification of the farmers' perceptions of these benefits in the future.

Indicators for measuring start-up success as outlined by Witt (2004) were included in the thematic analysis. The indicators captured within the interviews examined three key areas: 1) completing planning process; 2) founder business satisfaction; 3) persistence in the market. Through an examination of the farmers' responses in the interviews examine how the indicators affect the farmers in this specific context. The study's use of the self-reflection method will aid in identifying farmers perceptions of farm success. This enables the study to capture a more longitudinal picture of farmer perceptions beyond the current and future to include a conceptualization of previous experiences and the past context of the farmers' market access and personal network. The interview responses were further

examined thematically as they relate to beginning farm success indicators as outlined by Stinkis et al. (2005). These factors include: land area, changes in land area, funding, living standards, and founder's opinion of farm viability.

4.4.2. Quantitative Analysis

Quantitative measures of network structure and characteristics are represented in the theories of network size, alter degree centrality, ego-centric density, and tie characteristics, as previously outlined. One measure of network importance for an alter is based on degree of centrality. Centrality is based on the premise that prominent actors in the innovation network are extensively involved in relationships with other actors (Wasserman & Faust, 1995). Degree centrality is measured based on the idea that central actors are the most active because they have the most ties (Wasserman & Faust, 1995) and is therefore a measure of centrality (Scott, 1991). Degree centrality measures the number of ties present for a given node (N) relative to the network as a whole. This can be described in the formula:

$$C_d(n_i) = \lambda_i(n_i)/(N - 1)$$

Where C_d is degree centrality, n_i represents the i th node, $\lambda_i(n_i)$ is the number of ties for n_i , and $N-1$ is number of all the other nodes, besides the node of interest. Degree centrality is the measure of all actors connected to a particular actor (Wasserman & Faust, 1994).

Degree centrality bases centrality on how well connected a point is with in its local environment (Wellman, 1979). This, along with the measure of network density, yields insights about the unique characteristics of the network such as how tightly knit the network is, how quickly information is shared throughout the network, and allows for the

measurement of not just the equivalence and similarity within the network, but also identify actors and positions within the network. Another useful measure exists within the concept of effective size. Effective size is the representation of multiple sources of information, support, of resources within a network (Burt, 1992). Effective size can be calculated using the redundancy measurement known as average alter degree, which is the number of ties an alter has to other alters in the ego network, averaged amongst all of the alters and subtracting that figure from the size of the network, or the number of total alters in the network. Effective size allows for measurement of potential brokerage in a network, the visual representation of structural holes, and aids in identifying non-redundant sources of information (Borgatti et al., 2013).

Within entrepreneurial networks Witt (2004) identified size and density as particularly important for indicating success. Density can be conceptualized as the measurement of actual connections in a network relationship with the number of potential connections. Ego-density has been outlined as the most useful measurement to calculate density for ego-centered networks. Density is a measurement of the maximum number of ties that can occur (Scott, 1991; Wasserman & Faust, 1994). Density can also be reasonably estimated for ego-networks from sample data and is a useful way to compare networks of similar size and contexts (Scott, 1991). This allows for a reasonable structural descriptor to identify trends in the farmers' personal networks (Wellman, 1979). Network density can be measured through the formula:

$$D = \frac{\lambda}{N(N - \lambda)/2}$$

Where D is density, N represents the number of nodes in the network, λ is the actual connections, and $N(N-\lambda)/2$ represents potential connections. Actual connections are conceptualized as social relationships between alters and the ego. Potential connections are the maximum number of connections available in a network.

The size of the farmers personal network is measured through the calculation of the number of alters within each farmer's network. This measures the total number of individuals regarding the personal network of the farmer and a simple quantitative measure of the size of the farmers' networks.

Quantitative measures for start-up growth rate include financial results, such as sales, from the network (Witt, 2004). Conversely, examining the costs of the farmers' personal network in both monetary realities and perceived costs are important for both indicating start-up success and evaluating the personal network as a whole (Witt, 2004). The study measures these costs by asking farmers "What are the costs of setting up these networks or relationships?" and "What are the costs of maintaining these networks or relationships?". Additionally, measuring the farmers' current sales is key in identifying the current and future status of the farmers' market access.

5. Results

5.1. Antecedents

5.1.1. Farmer Typology

Open-ended interviews with eleven farmers enrolled in the Lansing Roots program were conducted. I was able to complete an interview with the primary decision maker of all of the available incubator farm plots on the farm. The interview sample consisted of six male farmers and five female farmers. Four farmers were under the age of 40, five were between 40 and 55 years of age, and two were above the age of 55. Race in the study was self-defined by the farmer. There was tremendous diversity in the program with three Black farmers, three Nepali farmers, three White farmers, one Asian farmer, and one Latino farmer. Nationality was also self-defined by the farmer. In terms of nationality, the program was seemingly able to successfully recruit immigrant farmers to the incubator setting with six Americans, three Bhutanese, one Somali, and one Burmese farmer participating in the program. Income levels were varied as well with five farmers earning less than \$20,000 a year, five farmers making \$20,000 to \$50,000 annually, and one farmer making \$50,000 to \$100,000 annually. The program is structured to incubate farmers for multiple years and the farmers are well distributed between four first-year farmers, two second-year farmers, and three third-year farmers in the program. Household sizes were also diverse with five farmers having a household size of one to four, five farmers having a household size of five to ten, and a single farmer with a household more than ten individuals.

One can clearly see the diversity amongst the farmers by this basic demographic information and this trend continues with the examination of the farmers' history of farming. Nine of the eleven farmers indicated that they were new to this type of farming

(referring to farming in Michigan's temperate climate as a new experience). The three Bhutanese farmers indicated that they farmed for 25, 36, and 45 years respectively in Bhutan. One farmer indicated that he had been farming in Michigan for eight years and is a third generation farmer. Another also indicated prior experience with this specific type of farming having farmed for five years and learned about farming as an urban farm educator and during her undergraduate degree in Agricultural Sciences. Another farmer also had an extensive education background in Agricultural Engineering and over 50 years experience in large scale agricultural projects, however indicated that he was new to this type of farming. A farmer identified as being completely new to farming despite having some experience as a child. A farmer also identified as having some experience as a child and spent six years working around farming issues in the tropics despite being new to this type of farming. One farmer indicated she was new to farming in Michigan but has over 15 years of farming experience in Burma. Another farmer said she was completely new to farming but identified some family experience in farming in Somalia. Finally, a farmer identified as having two years of farming experience and learned about farming from the Greater Lansing Food Bank's resource center, a local farm apprenticeship program, and from a local public park garden house center. The diversity in farming experience in different cultural and geographic settings displays the study's emphasis on the word "emerging" in its conceptualization of the program's farmers. These farmers are not beginning farmers but rather emerging in the sense that their participation in the Lansing roots program puts them on the threshold of entering the local food economic scene through an incubator farm setting.

Six of the farmers indicated that they did not have another occupation outside of farming although they all had other sources of income within their households. Two farmers are graduate students at Michigan State University. Only one farmer indicated having full time employment outside of the farm. Two farmers had their own entrepreneurial side occupations that they pursue on a part time basis. Many of the farmers indicated members of their household as contributing to farm labor and only two farmers were the sole sources of labor on their farm. Many of the farmers involved their families in farm labor. When asked if their children work on the farm, one farmer responded:

They love coming out here. –Farmer 11

The farmer made it quite clear that her children enjoyed working and playing on the farm site, referencing an inclusive atmosphere and a familial labor contribution to her plot.

Two farmers mentioned their significant others as assisting with labor. Two farmers indicated friends volunteering to help on the farm. A farmer indicated herself, her husband, an occasionally friends volunteering and another farmer stated that it is just her who works on the farm but sometimes she brings friends out to help and that was, in fact, one of the reasons she was farming to engage her friends in the farm.

5.1.2. Farm Typology

When examining the farm types found at the incubator farm a wide range of variables came into play. Farmers grew a wide variety of vegetables and their motivations for crop selection will be discussed later. Some of the vegetables grown by farmers included cabbage, corn, peppers, tomatoes, beans, collards, potatoes, tomatillos, basil, melons, and many more. The selection of crops and variety of practices displays a

tremendous amount of innovation by the farmers. One farmer even grows a loofah plant with the plan to grow create all natural sponges to sell. In terms of farming practices farmers use cover crops, trap-crop sections, crop rotation, no-till practices, crop mapping, bee pollination, intercropping, compost tea, composting, manual labor, transplants, row planting, pesticide and unnatural substance-free farming, plastic row covers, and drip irrigation. Many farmers emphasized building soil and an agro-ecological/sustainable approach to farming. Immigrant farmers emphasized planting in rows as a unique and new practice that was aided by the Roots staff using a tractor to create the rows. Two farmers indicated growing products specifically for the purpose to create value-added products.

Farm size is a key aspect of indicating farm success however; within this context every farmer has access to a quarter acre as part of his or her involvement in the incubator program. Stinkis et al. (2005) found a larger farm size has a positive effect on farm viability. Not all of the farmers choose to utilize the full plot and sometimes only cultivate only one-eighth of an acre. Conceptually, farmers saw farm size in a multitude of ways from exact foot-by-foot measurements, rows, beds, and acreage.

5.1.3. Resources

When asked about their access to resources farmers indicated a many types of marketing and farming resources. Within the Lansing Roots program exists a very progressive and innovative Community-Supported Agriculture (CSA) program that allows farmer a market outlet to sell their produce. Through the program's connection with the Greater Lansing Food Bank, the Roots staff is able to leverage their relationships with local companies to recruit large CSA distribution centers at local businesses. This allows the

program to access a wide variety of customers in a very efficient manner and provide farmers with a very competitive price for their products. The program takes 20% of the sales for the program and then gives the farmer 80% of the proceeds from the CSA shares that are purchased in direct proportion to the amount and quality of the products they provide for the CSA boxes. The Roots program also is able to recruit established local farms to contribute to the CSA and provide customers with products that the emerging incubator farmers cannot provide. In this way the program works to provide customers with a wide variety of products and contribute to the local farming community by incorporating some of their products in sales. Evidence suggests that for both producers and consumers in a local food economy CSAs foster the type of relationships that parallel emerging cooperative market linkages such as farmers market proliferation, consumer coops, and neighborhood restaurants. (Kloppenburger et al., 1996). The Roots program also pursues farm stand opportunities at local businesses and the three Farmers Markets that take place at the State Capital in Lansing, MI. The program also pursues wholesale sales at local restaurants and purchasing institutions (Lansing Roots Key Informant Interview, 2015). When asked about marketing and farming resources other farmers have that go beyond what they personally have access to, eight of the eleven farmers said that there is no difference in what they personally have access to and what other farmers have access to. The three farmers that indicated additional resources identified other farmers being able to sell within their own ethnic communities, utilizing expertise from their country, and selling to ethnic groceries.

For the resources that were named, every single farmer identified Lansing Roots in some form as their immediate response to the question. All three of the Roots selling avenues, Roots staff expertise, the Roots hoop house, and the farming tools and equipment

that the program makes available were specifically mentioned. One farmer mentioned friends, colleagues, and relationships as resources, and, word-of-mouth was identified by another to suggest that two farmers saw their personal networks as a resource for farming and marketing resource information. Three farmers mentioned an Internet resource such as the USDA's government site. Two farmers named the Allen Neighborhood Center of Lansing, MI as a local farming and marketing resource. Another Lansing non-profit organization was mentioned in the Urbandale farm apprenticeship program. The East Lansing Food Co-Op (ELFCO), local restaurants, and Michigan State University extension were additional resources utilized by farmers in the program.

Another useful way of gauging the resources that are available is to examine farmers' responses was to the question: How do you see local food in this area? All of the farmers that responded to the question had a positive outlook when asked the question. Six farmers indicated an increase in market opportunities on the whole, pointing to farmers markets, the local food hub, restaurants, and growing interest in organic and local products by consumers. One farmer described the local food movement in the area as quite strong and indicated the Lansing is well connected and accessible to farmers. Another farmer stated that local food is valuable because it is fresher than produce that is trucked in from California. Additional viewpoints of local food included the idea that the food is healthy and there is enough food in the community, indicating local foods contribution to food security. Two farmers discussed the quality services provided by the Greater Lansing Food Bank in their response. One farmer very articulately emphasized these points by saying:

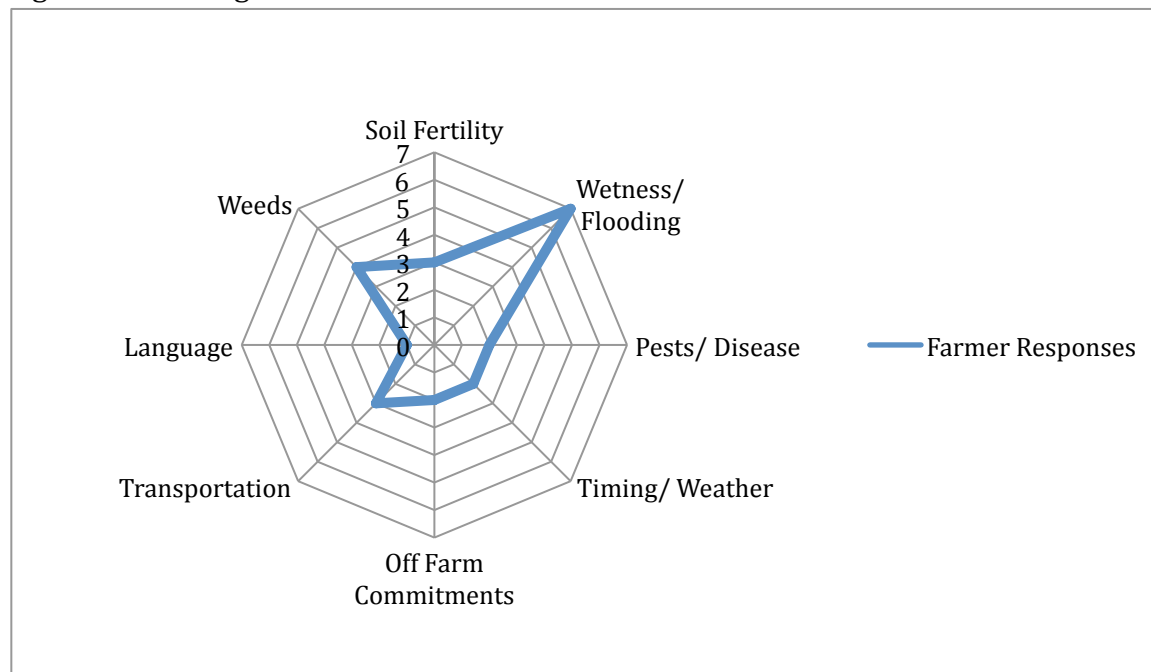
I see the local food movement as a necessary response to food insecurity and quality of food that accessible to many people, low income, middle class, all populations, all

groups of people. And it's sort of, I mean it's not new. Sometimes local food is branded as this new thing and it's not. It's sort of returning back to the original way of living and being, actually consuming food that was grown in close proximity to where you live. It just makes logical, well it makes logical sense... it makes economic sense, it makes health sense, it makes political sense, I mean it just makes sense from all standpoints. –Farmer 7

5.1.4. Barriers

Farmers also indicated eight types of farming barriers in the interviews. Below is Figure 3 that illustrates the number of farmer responses for farming barriers throughout their interview.

Figure 3: Farming Barriers

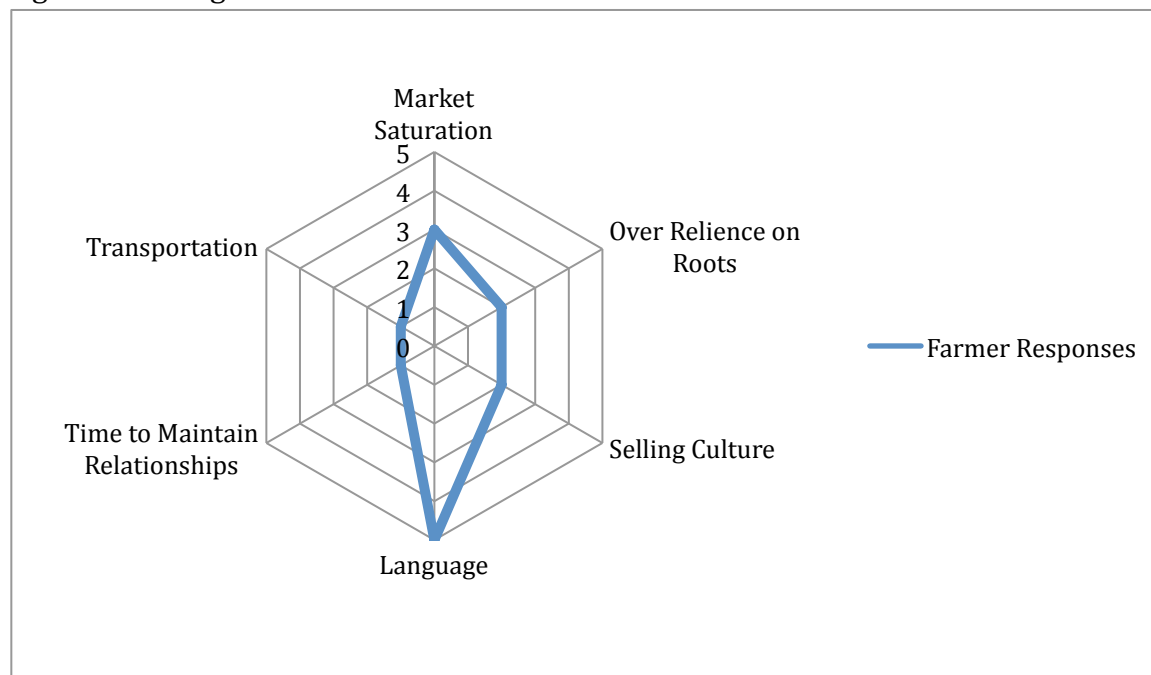


Clearly from this graphic, it is evident that the wetness at the farm presents a significant challenge for the farmers. The farmers clearly indicated flooding as a challenge

on many of their farms. It should be noted that there was a large amount of rain in June and July 2015 when the interviews were being conducted. This wetness proved to be such a prevalent theme in part due to the clay soils at the incubator farm location and this was noted with three farmers indicating soil quality as significant barrier. Four farmers noted weeds as a challenge when farming. Two farmers also indicated both pests and disease and the timing around Michigan's temperate climate as barriers. Nationality and race was the deciding factor for when a farmer indicated transportation as a farming barrier. The Nepali Bhutanese farmers all indicated difficulty in obtaining transportation to the farm. One Nepali Bhutanese farmer indicated language as a barrier in obtaining seeds to be able to sow their plot. We see this challenge magnified when farmers identified selling barriers.

Farmer barriers to selling products were also identified by farmers, and are depicted in Figure 4 below:

Figure 4: Selling Barriers



Farmers identified six selling barriers throughout the interviews. Three farmers highlighted market saturation in the area as a challenge to selling their products. This point was illustrated in one interview:

I think it is always going to be a challenge though. I mean the market is getting more and more flooded. Around here from what I'm learning is produce does not get top dollar in this area at all. – Farmer 5

Two farmers indicated that they relied too much on the Roots staff, excluding language barriers, to sell their products and that they were not likely then to sell their own goods due to this reliance. This was illustrated by Farmer 2, saying:

Ultimately, Roots is great, they do a lot of it for you, to the point that you don't have to hardly do anything to market it yourself you just have to grow it and talk to (Roots staff). Which is a plus and a minus. In terms of not necessarily understanding how to go about it on your own. – Farmer 2

Two other farmers discussed the culture of selling produce and vegetables as something they were unfamiliar with and hindered their ability to sell their products. One farmer discussed difficulty in having time to maintain contacts with buyers due to off farm commitments. Transportation, as with farming barriers, were again a theme amongst the Nepali Bhutanese farmers as a very significant challenge to selling their products. Finally, for all of the immigrant farmers language was identified as their primary barrier to selling their products. This was emphasized by all five of the immigrant farmers with statements such as:

Due to language problem, I don't know if I would be able to do it because I don't know who wants what and I don't even know the names (of the vegetables). I can grow what they provide me. I can do farming and I can grow plants but I don't know if I will be able to sell them. – Farmer 8

I realize that language is a key thing, even if I say hi then people will come look at my products. – Farmer 10

5.1.5. Aspirations

When analyzing the findings of the farmer interviews it is important to contextualize farm success indicators with what exactly success means to each farmer. In order to understand what success means for each farmer, one must first examine why the farmer indicated they are farming. Three farmers indicated improving their quality of life as a reason they are farming. All of the American farmers indicated some sort of intrinsic value to farming when asked why they were farming. This took a variety of forms, whether it was to farm sustainably with nature, to be outside in nature, to combat industrial agriculture and unjust food systems, or to enjoy the opportunity to provide chemical-free produce to the community. What was then interesting was that none of the immigrant farmers then identified more intrinsic qualities to farming when asked why they were farming. One farmer articulated very candidly on why he is farming:

Because I think I am good at farming and I also like to enjoy the fresh vegetables, especially in the place we live right here, vegetable is not an easy, it is not a lower cost, it is kind of, to get fresh fruit is cost higher, cost higher a little bit for us and for our

family and we don't really buy a lot of vegetables this summer because we have our own farm and garden. So that's the reason I am farming. – Interview 4

One farmer indicated he was farming as a hobby while in contrast to another farmer indicated he joined Roots to refine and expand his farm business. Five farmers emphasized consuming the products as a reason they are farming. Three farmers emphasized the reason they are farming is because they were farming back before they arrived in the Lansing area. Two farmers indicated that they farm because of the financial help that selling their products provides.

When asked precisely what success meant to them, farmers indicated a variety of answers and these varieties of answers makes it difficult to predict indicators for farm success across eleven respondents. One farmer identified success as moving his product. He indicated he could get there by spending four hours in the field per day working on his plot. A farmer stated that success for her would be getting through a season, fulfilling CSA orders from the Roots program, learning a lot, being efficient, keeping good records, and understanding the farming industry. She indicated she could get there by working with types of programs like Roots. Another farmer stated that success for him is learning a lot. A farmer said farming makes him happy and success to him would be to continue farming. He acknowledged that he can get there by using his farming skills and growing and selling as best he can. Farmer 5 stated:

We started with the mentality of, okay what do we want to grow for ourselves and that is why we are doing this primarily is just to learn how to grow our own food and then it turned into, okay well what can we grow to contribute to the CSA, what can we grow

hopefully maybe someday for a profit...I think my aspirations for farming... were to just to grow as much food as I could that I could store to have clean food and to have food all year round that was food that I knew where it came from. – Farmer 5

This success could be achieved according to one farmer by continuing to learn at the Roots program. Success for another farmer was very specific with a desire to grow heirloom tomatoes and salad mix greens for five CSAs and five restaurants and carve out his own niche in the local food economy. He indicated he could get there by working to improve his soil quality and continuing to farm. A farmer did not see herself continuing to farm but rather to stay involved in producing ethical food somehow in the future. She saw continuing to observe, listen, and build relationships as the way to achieve this. Another farmer saw success as improving his farm skills and planting on time and can achieve this by doing his farm responsibilities on time. A farmer identified success as selling all her produce and sees investing time on the farm as the way to get there. Another farmer stated success to her meant being able to do what the Roots program teaches and indicated listening and learning as key to achieving this success. Finally, another farmer saw success as planting and getting the money from selling the products and she sees working hard on the farm as the way to achieve this success. It seems that only one farmer directly identifies success with farming for the market however the avenues of market entry for the emerging farmers are expanded when we examine the farmers' plans and goals for farming and selling.

Farmers also had telling insights when asked what success might look like for other farmers in the program. Six of the farmers alluded to the varying nature of farmer concepts

in success, outlining the diversity in farmers farming for market, personal consumption, farming for enjoyment, and farming just to learn. Three of the farmers indicated also indicated that they perceive success for other farmer in the program to be simply selling all of their products.

5.2. Networking Activities

The only difference identified between how farmers build and maintain personal networks for market access was a farmer indicating that she had a difficult time maintaining relationships with potential customers due to off-farm commitments. Besides that singular case, all of the farmers indicated that building and maintaining networks were achieved through the same activities that included talking to other farmers, attending conferences, and asking the Lansing Roots staff for advice.

5.2.1. Time Spent Networking

Farmers indicated varying amounts of time spent networking without too much variability between the temporal difference between a weekly and monthly time periods. Two farmers did indicate spending significant time networking on both a weekly and monthly basis. This did not however create a noticeable change to the farmers network, advice or support, in relation to the other nine farmers in the program. Farmers spent from zero to 15 hours per week networking. Eight of the 11 farmers indicated spending two or less hours networking per week. When examining the time spent networking it appears that the strategies and practices for building a personal network have more of an effect on the network composition, as we see demonstrated in the coming sections of the study.

5.2.2. Strategies

Within the interviews, farmers indicated a variety of strategies for building and maintaining their personal networks. The construction of personal networks by the farmers demonstrated a strong relationship between these activities and the diversity and size of the farmers' advice networks. One farmer indicated his networking strategy both for meeting customers and for general networking as reaching out to his community, this was then reflected in his advice and support networks containing connections outside of the Lansing Roots staff. Some of the immigrant farmers did not state any networking strategies nor strategies for meeting customers or meeting people in the local farming community outside of the farm. This was reflected in their advice networks with no members of their networking being non-roots staff. Two additional farmers indicated that they do not meet customers outside of the Roots staff connections. All of the American farmers and an additional farmer indicated some sort of combination of friends, family, community members, workshops, conferences, attending farmers markets, and the internet as specific networking strategies in general and for both meeting customers and people in the local farming community. This is reflected in the diversity in these farmers' advice networks expanding beyond Lansing Roots staff.

5.2.3. Networking Culture, Abilities, And Attitudes

When examining networking culture, abilities, and attitudes a clear trend emerged. American farmers indicated a shift in networking activities during the non-growing season, with all six of the farmers stating that they spend their time differently, in that they

increase networking activities, during the winter, early spring, and late fall in order to recruit customers, market their products, or switch to more indoor activities such as attending workshops. The Bhutanese immigrant farmers indicated that they only spend time networking during the time that they are at the farm during the growing season. This trend is illustrated in the composition and characteristics of the farmers' personal advice networks.

5.3. Network Characteristics

The study was successful in maintaining consistent instructions throughout the data collection process in the interview process with each farmer asked the same three questions to construct an idea of what their personal networks look like around advice, support, and a hypothetical selling network. The results that farmers identified provided unique insights into each farmer's personal networks. Tables indicating they are a roster are the individuals or alters in which each farmer named in response to the question and the characteristics of each alter as defined by the farmer. Tables indicating a relationship matrix are the display of each farmers answer to questions "As far ask you know, do *alter-a* and *alter-b* know each other? If yes, what is the nature of their relationship?"; classified in tie strength as family, friend, professional associate, or acquaintance. Figures indicating a sociogram are the visual display of the farmers' personal networks.

5.3.1. Advice Networks

When asked the question: Who do you discuss or seek advice from when marketing and selling your products? Farmers responded with anywhere from 16 to two individuals.

Five farmers indicated only having Lansing Roots staff in their advice network. Table 1 is the advice network roster, Table 2 is the relationship matrix, and Figure 5 is the sociogram of a network typical to these five farmers.

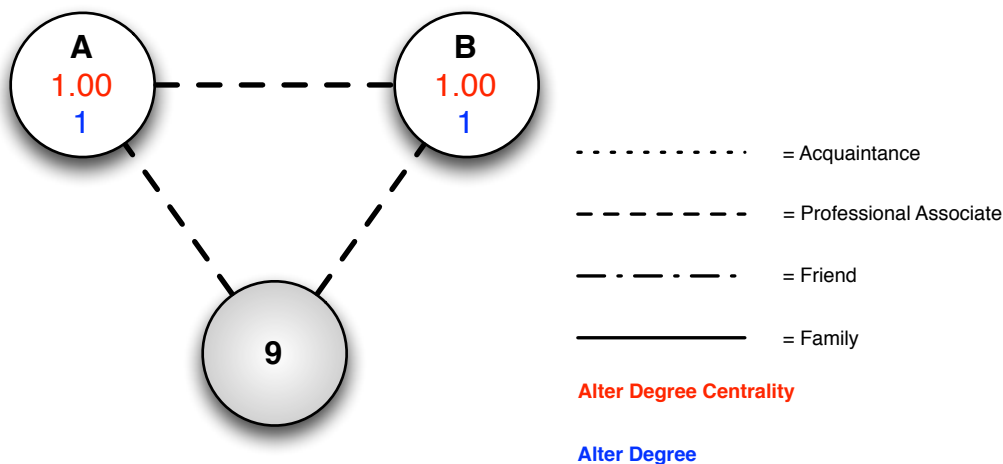
Table 1: Farmer #9 Advice Network Roster

Code	Role/Job	Relation	Gender	Age	Race	Nationality	Length	Occupation
A	Roots supervisor	Pro	F	26	White	American	7 months	Roots supervisor
B	Roots manager	Pro	M	40	White	American	7 months	Roots manager
Avg.		2		31	White	American	7 months	

Table 2: Farmer #9 Advice Network Relationship Matrix

Code	B
A	Pro

Figure 5: Farmer #9 Advice Network Sociogram



Farmer 9 has a network that consists of exclusively white American Roots staff as shown in Table 1. The network has maximum density of 1, high redundancy with alter degrees of 1 and alter degree centrality of 1, purely professional ties, and a low effective size of 1; as displayed in Table 2 and Figure 5.

The other six farmer networks vary in size from two to 16 individuals within the network. Within Farmer 1's advice network we see fairly average (for farmers in the

program) network size and a very low density, which leads to a fairly high effective size of the network. The network has low density with only one alter to alter tie leading to a density of 0.17 and effective size of for Farmer 1's network. The network ties are characterized as predominantly professional and there is a low measurement of redundancy of ties, exemplified with the alter degree centralities and alter degrees, between alters. This suggests a variety of information from predominantly professional sources. The network has an average ego tie strength of 2.25 indicating professional ties from exclusively American alters.

Farmer 3 has an advice network consisting of two individuals. The alters in the network are exclusively white American females. The network has a low effective size of 1, maximum density of 1, a high degree of redundancy, maximum alter degree centrality of 1, and alter degrees of 1. The ties are characterized as all professional. Farmer 5 indicated the largest advice network out of all of the Roots farmers. The alters in the network are exclusively American and predominately white. The network also has the largest effective size of 9.44; which leads to its fairly low density of .43. The ties are characterized as professional with an average tie strength of 2.04 and the network displays a high degree of information resiliency due to the average alter density being very high and indicating high redundancy amongst alters. This figure of resiliency leads to the idea that information in the farmer's advice network coming from many different ties that are interconnected. Table 3 below is the advice network roster, Table 4 is the relationship matrix, and Figure 6 is the sociogram of Farmer 2 who could be described as having a typical advice network that extends beyond just Lansing Roots staff.

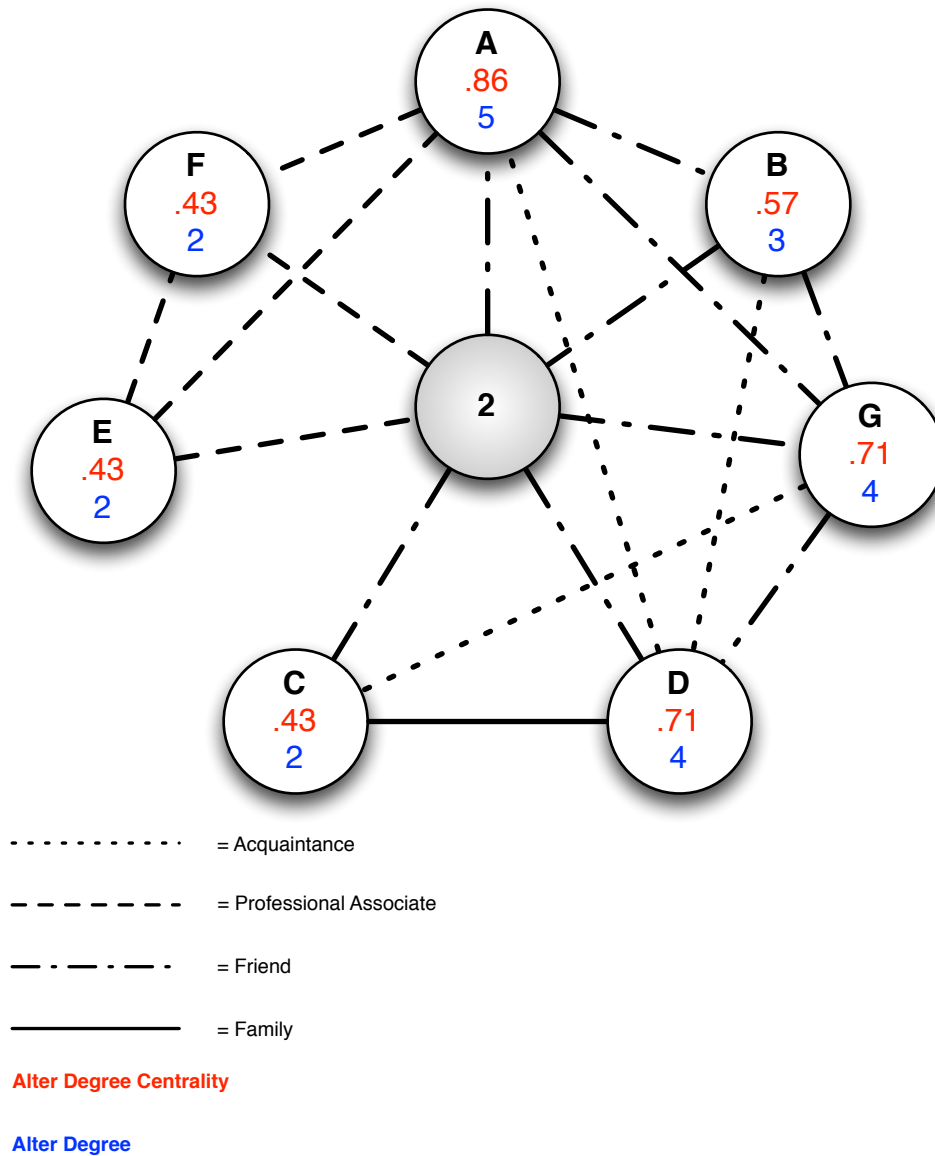
Table 3: Farmer #2 Advice Network Roster

Code	Role/Job	Relation	Gender	Age	Race	Nationality	Length	Occupation
A	Roots Marketing Manager	Fri	F	27	White	American	3 years	Roots Marketing Coordinator
B	ANC Exchange Manager	Fri	F	25	White	American	2 years	ANC Exchange Manager
C	Neighbor	Fri	F	43	Asian	American	3 years	Juvenile Counselor
D	Neighbor	Fri	M	42	White	American	3 years	Financial officer & Community Organizer
E	Farmer	Pro	M	52	Hispanic	American	<1 year	Roots Farmer/Lawncare
F	Farmer	Pro	M	45	White	American	<1 year	Roots Farmer
G	ELFCO Produce Manager	Fri	M	37	White	American	3 years	ELFCO Produce Manager
Avg.		2.71		38.71		American		

Table 4: Farmer #2 Advice Network Relationship Matrix

Code	G	F	E	D	C	B
A	Fri	Pro	Pro	Acqu	No	Fri
B	Fri	No	No	Acqu	No	
C	Acqu	No	No	Fam		
D	Fri	No	No			
E	No	Pro				
F	No					

Figure 6: Farmer #2 Advice Network Sociogram



Farmer 2 has an advice network shown in Table 3 and Figure 6 is characterized by its large size, $n=7$, and effective size, 3.86, with a high degree of redundancy, as shown with alter degrees, 3.14 average, and alter degree centrality. The Farmers' ties with alters are of a stronger nature, more friends, than other advice networks as shown in Table 4 compared to Table 5 measures of average tie strength. This is displayed with an ego average tie strength of 2.71 being a tie closer to a friend than professional associate compared to the

total of all farmers average tie strength as seen in Table 5, being 2.23 or closer to a professional associate than a friend. Table 3 displays exclusively Americans within the farmer's network and variety of professional roles amongst alters.

Farmer 6 has a network that consists exclusively of white Americans and mostly professional ties. It is also comprised of half Roots staff, and half key actors in the local food community. The network is large yet very dense, density equals 0.89, and thus has an average effective size of 2.63. Ties also demonstrate a high degree of redundancy through a high average alter degree of 5.37. Farmer 8 has a network that consists of only Lansing Roots staff and community members. The network has very low density of 0.17, low redundancy with average alter degree of 0.5, professional and friendly ties averaging 2.5, and a high effective size of 3.5. The redundancy of ties is very low due to the two community members in the advice network not knowing each other and not knowing Roots staff. This suggests high variety of information and advice in the network.

Quantitative measures of network characteristics that allow for comparison across networks and averaging across all the farmers include density, size, ego average tie strength (E-ATS), total average tie strength (T-ATS), alter average tie strength (A-ATS), average alter degrees (AAD), and effective size (Eff Size). The total quantitative representation of the eleven farmers' advice networks can be seen in Table 5:

Table 5: Advice Networks Summary

Code	Density	Size	E- ATS	T- ATS	A- ATS	AAD	Eff Size
1	0.17	4	2.25	2.2	2	0.5	3.5
2	0.52	7	2.71	2.44	2.27	3.14	3.86
3	1	2	2	2	2	1	1
4	1	2	2	2	2	1	1
5	0.43	16	2.125	2.04	2.02	6.56	9.44
6	0.89	8	2.125	2.03	2	5.37	2.63
7	1	2	2	2	2	1	1
8	0.17	4	2.5	2.4	2	0.5	3.5
9	1	2	2	2	2	1	1
10	1	3	2.33	2.5	2.67	2	1
11	1	2	2.5	2.33	2	1	1
Average	0.74	4.73	2.23	2.18	2.09	2.10	2.63

The average of the eleven farmers' advice networks displays networks that are fairly dense (0.74), have fewer than five individuals named, are mostly professional ties for the networks as a whole and both from farmer to alter and alter to alter, the average alter knows a little more than one other person in the network besides the farmer, and has an effective size of 2.63.

The relationships between farmers and the individuals in their networks were not overwhelmingly found to be relating to any demographic characteristic outside of race and nationality. Most individuals in the advice networks were found to be white and American. Advice networks however, do not observe the concept of homophily between egos and alters.

5.3.1.1. Roots Staff Role In Advice Networks

The concept of structural equivalence is evident in the farmers' advice networks with the role of Roots staff members. When examining advice networks a theme emerged with a near even split between six farmers that have network members outside of Roots

staff and five farmers who have a advice network consisting of exclusively Roots staff. This allows the study to then examine the characteristics of the structurally equivalent Roots staff members in the farmers' advice networks. Table 6 below demonstrates the degree centrality of the four Roots staff members (the top row of the table) named by each of the farmers (the left column of the table).

Table 6: Roots Staff Degree Centrality

Code	A	B	C	D	Avg.
1	X	X	X	X	X
2	0.86	X	X	X	0.86
3	1	X	X	X	1.00
4	1	1	X	X	1.00
5	0.625	0.94	0.31	X	0.63
6	1	0.88	0.75	1	0.91
7	1	1	X	X	1.00
8	0.5	0.5	X	X	0.50
9	1	1	X	X	1.00
10	1	1	1	X	1.00
11	1	1	X	X	1.00
Total	10	8	3	1	2.00
Avg.	0.90	0.92	0.69	1.00	0.88
Average of staff members A & B					0.91

Table 6 illustrates how ten of the eleven farmers' indicated Roots staff in their advice network. The average degree centrality of the Roots staff is 0.88 that indicates that the Roots staff are very well connected and act as key actors in the farmers' advice networks. This becomes more prominent when the two primary Roots staff members, alters A and B, mentioned in the networks are analyzed and yield an average degree centrality of 0.91, suggesting an extremely high amount of connections within the advice network. This shows that Roots staff members will most likely know another actor in farmers' advice networks. The representation of Roots staff is further illustrated in Table 7 (top row of the table) alter degrees for each of the farmers (left column of the table) below:

Table 7: Roots Staff Alter Degrees

Code	A	B	C	D	Avg.
1	X	X	X	X	X
2	5	X	X	X	5.00
3	1	X	X	X	1.00
4	1	1	X	X	1.00
5	9	7	4	X	6.67
6	7	6	5	7	6.25
7	1	1	X	X	1.00
8	1	1	X	X	1.00
9	1	1	X	X	1.00
10	2	2	2	X	2.00
11	1	1	X	X	1.00
Total	10	8	3	1	2.00
Avg.	2.90	2.50	3.67	7.00	3.05
Average of staff members A & B					2.72

Table 7 shows that of the average 4.73 individuals in farmer's advice networks, Roots staff knows 3.05 other actors. This number is slightly decreased to 2.71 when examining the two primary Roots staff members. Further analysis of the networks is then possible by removing the Roots staff members from farmers' return dramatically different network characteristics. This is illustrated below in Table 8 for each of the farmers (left column of the table) and then further broken down in Table 9 and Table 10:

Table 8: All Advice Networks Without Roots Staff

Code	Density	Size	E-ATS	T-ATS	A-ATS	AAD	Eff Size
1	0.17	4.00	2.25	2.20	2.00	0.50	3.50
2	0.40	6.00	2.67	2.50	2.33	1.67	4.33
3	X	1.00	2.00	2.00	X	0.00	1.00
4	X	0.00	X	X	X	X	0.00
5	0.45	13.00	2.15	2.10	2.09	4.38	8.62
6	1.00	4.00	2.00	2.00	2.00	3.00	1.00
7	X	0.00	X	X	X	X	0.00
8	0.00	2.00	3.00	3.00	X	0.00	2.00
9	X	0.00	X	X	X	X	0.00
10	X	0.00	X	X	X	X	0.00
11	X	0.00	X	X	X	X	0.00
Avg.	0.40	2.73	2.35	2.30	2.11	1.59	1.86

Table 9: Six Farmers With Networks Outside Roots Staff

Code	Density	Size	E-ATS	T-ATS	A-ATS	AAD	Eff Size
1	0.17	4.00	2.25	2.20	2.00	0.50	3.50
2	0.40	6.00	2.67	2.50	2.33	1.67	4.33
3	X	1.00	2.00	2.00	X	0.00	1.00
5	0.45	13.00	2.15	2.10	2.09	4.38	8.62
6	1.00	4.00	2.00	2.00	2.00	3.00	1.00
8	0.00	2.00	3.00	3.00	X	0.00	2.00
Avg.	0.40	5.00	2.35	2.30	2.11	1.59	3.41

Table 10: Five Farmers Without Networks Outside Roots Staff

Code	Density	Size	E-ATS	T-ATS	A-ATS	AAD	Eff Size
4	X	0.00	X	X	X	X	0.00
7	X	0.00	X	X	X	X	0.00
9	X	0.00	X	X	X	X	0.00
10	X	0.00	X	X	X	X	0.00
11	X	0.00	X	X	X	X	0.00
Avg.	X	0.00	X	X	X	X	0.00

It is clear from the progression of Table 8 to Table 10, that five farmers have their advice networks completely disappear without including Lansing Roots staff. We see the six farmers with a outside network in Table 9 displaying, compared to the previous all network averages in Table 5, a higher effective size, total network size, stronger ties, and a lower density and alter redundancy when the Roots staff members are removed. This suggests a greater diversity of information and contacts outside of Roots staff members in networks.

Farmers with advice networks outside of Lansing Roots staff were mostly male, had an average age of 51.17, had an average income range of \$20,000 to \$50,000, had been in the incubator program for an average of 1.67 years, and an average household size of 3.67. Farmers with advice networks consisting of exclusively Lansing Roots staff were mostly female, had an average age of 34.8, had an average income range of \$20,000 to \$50,000,

had been in the incubator program for an average of 2.2 years, and an average household size of 7.6. The emerging theme of the comparison between the two groups results in a trend of Americans having networks outside of Roots staff and immigrant farmers having networks consisting of only Roots staff. Additionally, female farmers seemed to have more limited networks when compared to males. Surprisingly, average experience in the program actually decreases from farmers in the first group to farmers in the second group. Household size also decreases from the first group to the second. Perhaps the primary take away from this split however, is the fact that all of the white farmers have networks outside of Roots staff. This suggests an advantageous advice network composition for white farmers.

5.3.2. Support Networks

When asked the question: Who do you celebrate selling and farming milestones with? Farmers responded with anywhere from three to 32 individuals. Below are two table representations and full sociogram display of the support networks that were named by each of the eleven farmers in the Lansing Roots incubator farm program. When appropriate, an example of a milestone was provided, such as starting a CSA or having a particularly good crop harvest. The quantitative measures of the support networks can be seen below in Table 11 with farmers on the left column and the measures on the top row:

Table 11: Support Networks Summary

Code	Density	Size	E-ATS	T-ATS	A-ATS	AAD	Eff Size
1	0.30	5	2.60	2.13	1.33	2.20	3.80
2	0.52	19	3.63	3.88	3.54	9.47	9.53
3	1.00	21	3.05	3.00	3.00	20.00	1.00
4	1.00	26	4.00	4.00	4.00	25.00	1.00
5	0.60	5	3.00	2.82	2.67	2.40	2.60
6	0.62	15	3.27	2.74	2.84	8.67	6.33
7	0.60	5	3.40	3.55	3.17	2.40	2.60
8	0.71	8	3.25	3.36	3.45	5.00	3.00
9	1.00	8	3.50	3.19	3.11	7.00	1.00
10	1.00	3	2.33	2.50	2.67	2.00	1.00
11	0.92	32	3.91	3.94	3.94	28.62	3.38
Avg	0.75	13.36	3.27	3.19	3.07	10.25	3.20

The support networks are best analyzed in contrast with farmers' advice networks. Farmer support networks and advice networks had very similar densities. The sizes of the support networks were larger than the advice networks and they were characterized by much stronger ties throughout. Support networks also were characterized as having a much higher average alter degree, as shown in Table 11 compared to Table 5; however it should be noted that redundancy in emotional support is not a hindrance to entrepreneurial success. Support networks also displayed greater effective sizes. When a network displays a large group of structurally equivalent alters containing identical ties, the concept of an image matrix is utilized to simplify and streamline the representation of the ego network.

Farmers named between three and 32 individuals in their support networks. Farmer 2's support network displays a very large family influence in celebrating success with all of the family members named by the farmer. The network demonstrates the farmer has known the alters for a long time and alter are exclusively Americans and predominantly White. The network is characterized by a very high effective size suggesting

the farmer celebrates success with a variety of individuals. The network displays a high diversity of alter-to-alter ties. Farmer 6's support network displays similar characteristics and is represented below with a network roster as shown in Table 12, relationship matrix as shown in Table 13, and sociogram as shown in Figure 7.

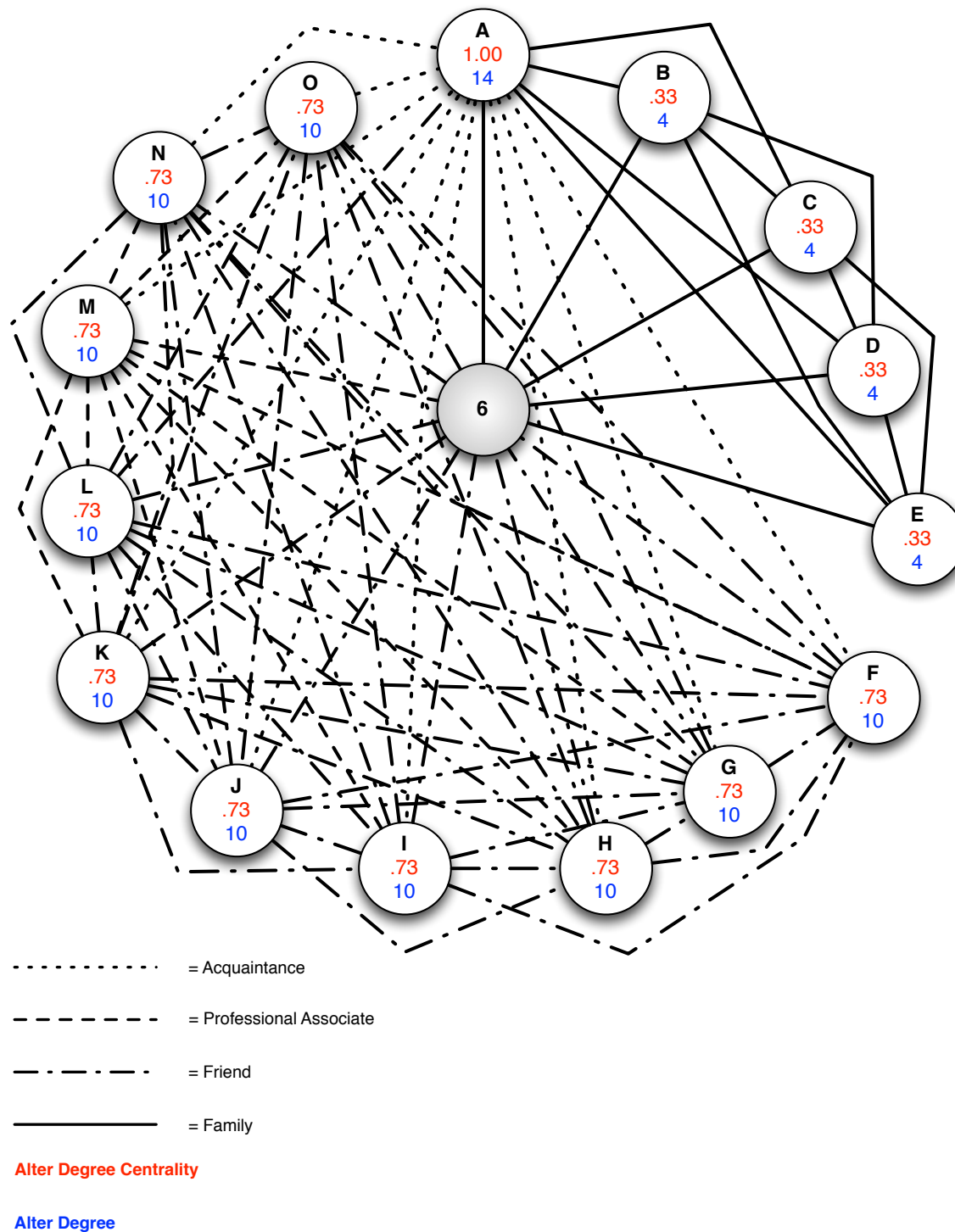
Table 12: Farmer #6 Support Network Roster

Code	Role/Job	Relation	Gender	Age	Race	Nationality	Length	Occupation
A	Girlfriend	Fam	F	53	White	American	10+ years	Message Therapist
B	Mother	Fam	F	62	White	American	10+ years	
C	Father	Fam	M	64	White	American	10+ years	
D	Step-mom	Fam	F	64	White	American	10+ years	
E	Daughter	Fam	F	21	White	American	10+ years	
F	Roots Farmer	Fri	F	55	Nepali	Bhutanese	2 years	Farmer
G	Roots Farmer	Fri	M	40	Black	Sudanese	2 years	Farmer
H	Roots Farmer	Fri	M	65	Black	Sudanese	2 years	Farmer
I	Roots Farmer	Fri	M	40	White	American	1 year	Farmer
J	Roots Farmer	Fri	M	40	White	American	1 year	Farmer
K	Roots Farmer	Fri	M	55	Hispanic	American	1 year	Farmer
L	Friend	Fri	M	35	White	American	2 years	Roots AmeriCorps Director
M	GLFB Program Director	Pro	M	38	White	American	2 years	GLFB Program Director
N	Roots Farmer	Fri	M	53	Nepali	Bhutanese	2 years	Farmer
O	Roots Farmer	Fri	M	20	Asian	Asian	1 year	Farmer
Avg.		3.27		47				

Table 13: Farmer #6 Support Network Relationship Matrix

Code	O	N	M	L	K	J	I	H	G	F	E	D	C	B
A	Acqu	Acqu	Acqu	Fri	Acqu	Acqu	Acqu	Acqu	Acqu	Acqu	Fam	Fam	Fam	Fam
B	No	No	No	No	No	No	No	No	No	No	Fam	Fam	Fam	
C	No	No	No	No	No	No	No	No	No	No	Fam	Fam		
D	No	No	No	No	No	No	No	No	No	No	Fam			
E	No	No	No	No	No	No	No	No	No	No				
F	Fri	Fri	Pro	Fri	Fri	Fri	Fri	Fri	Fri					
G	Fri	Fri	Pro	Fri	Fri	Fri	Fri	Fri						
H	Fri	Fri	Pro	Fri	Fri	Fri	Fri							
I	Fri	Fri	Pro	Fri	Fri	Fri								
J	Fri	Fri	Pro	Fri	Fri									
K	Fri	Fri	Pro	Fri										
L	Fri	Fri	Pro											
M	Pro	Pro												
N	Fri													

Figure 7: Farmer #6 Support Network Sociogram



Farmer 6 has a large support network shown in Table 12 and Figure 7, with a large effective size, despite a high measurement of alter redundancy as seen in Table 13. The alters in the network are diverse as seen in Table 12 compared to other support networks.

It is characterized by a diversity of ties as seen in Table 13 and a fairly low measure of density as shown in Table 11. Farmer 7 indicated a support network that can be characterized as smaller in nature. It can be seen below in a network roster, relationship matrix, and sociogram.

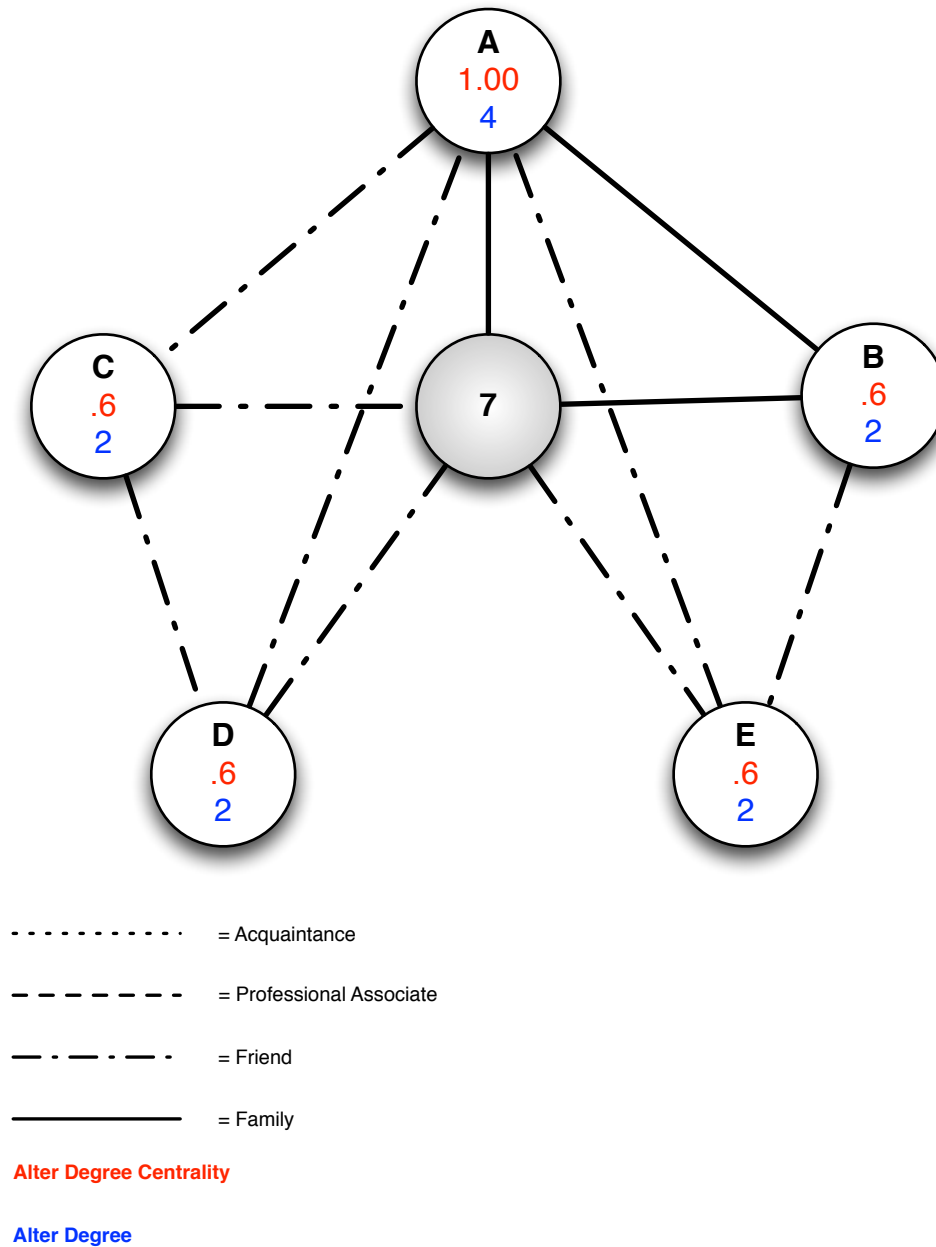
Table 14: Farmer #7 Support Network Roster

Code	Role/Job	Relation	Gender	Age	Race	Nationality	Length	Occupation
A	Support	Fam	F	7	Black	American	7 years	
B	Support	Fam	M	75	Black	American	10+ years	Retired
C	Support	Fri	M	27	Black	American		Farmer
D	Support	Fri	F	28	Black	American		Farmer
E	Support	Fri	M	29	Black	American		Farmer
Avg.	Support	3.4		33.2	Black	American		

Table 15: Farmer #7 Support Network Relationship Matrix

Code	E	D	C	B
A	Fri	Fri	Fri	Fam
B	Fri	No	No	
C	No	Fri		
D	No			

Figure 8: Farmer #7 Support Network Sociogram



Farmer 7's support network consists of exclusively Black Americans with strong ties as seen in Table 14. The support network for Farmer 7 is fairly small compared to other farmers, as seen in Table 14 and Table 11, and displays a low measure of redundancy amongst ties as shown in Table 15. It is characterized by its fairly low density and low average alter degree measurement, seen in Figure 8, meaning the ties are not redundant.

A similarly small support network was that indicated by Farmer 1. Farmer 1 indicated exclusively White Americans in their support network. Farmer 1's support network is characterized by weak alter to alter average ties and a low density. It also displays a size that is far below the program's average size for the other farmers' support networks. The network also had a low average alter degree indicating low redundancy. Taking this into account, the network actually displays a higher effective size than average. Farmer 5 has a relatively smaller support network and is, in fact, the only farmer to identify a smaller support network than advice network. The network indicated was exclusively White Americans. The network is characterized by a diversity of ties, a low measure of redundancy a low average alter degree centrality, and a relatively low density.

The support network for Farmer 4 is very simple and is characterized by exclusively family support. The farmer celebrates success with 26 family members and this leads to a very high degree of redundancy due to maximum alter degree centrality and average alter degree, large network size, and a maximum measure of density. Family ties and a very low effective size also characterize the network. A similar network can be found in Farmer 8's support network. Farmer 8's support network is characterized by a diversity of ties. The network consists of Roots staff plus strong ties to their immigrant community and family members. The network is unique in that it displays a high measurement of redundancy due to high average alter degrees and strong alter to alter tie strengths. Farmer 11 indicated a network, which could be described as typical in these sorts of support networks, and it can be seen below displayed with a network roster, relationship matrix, and sociogram.

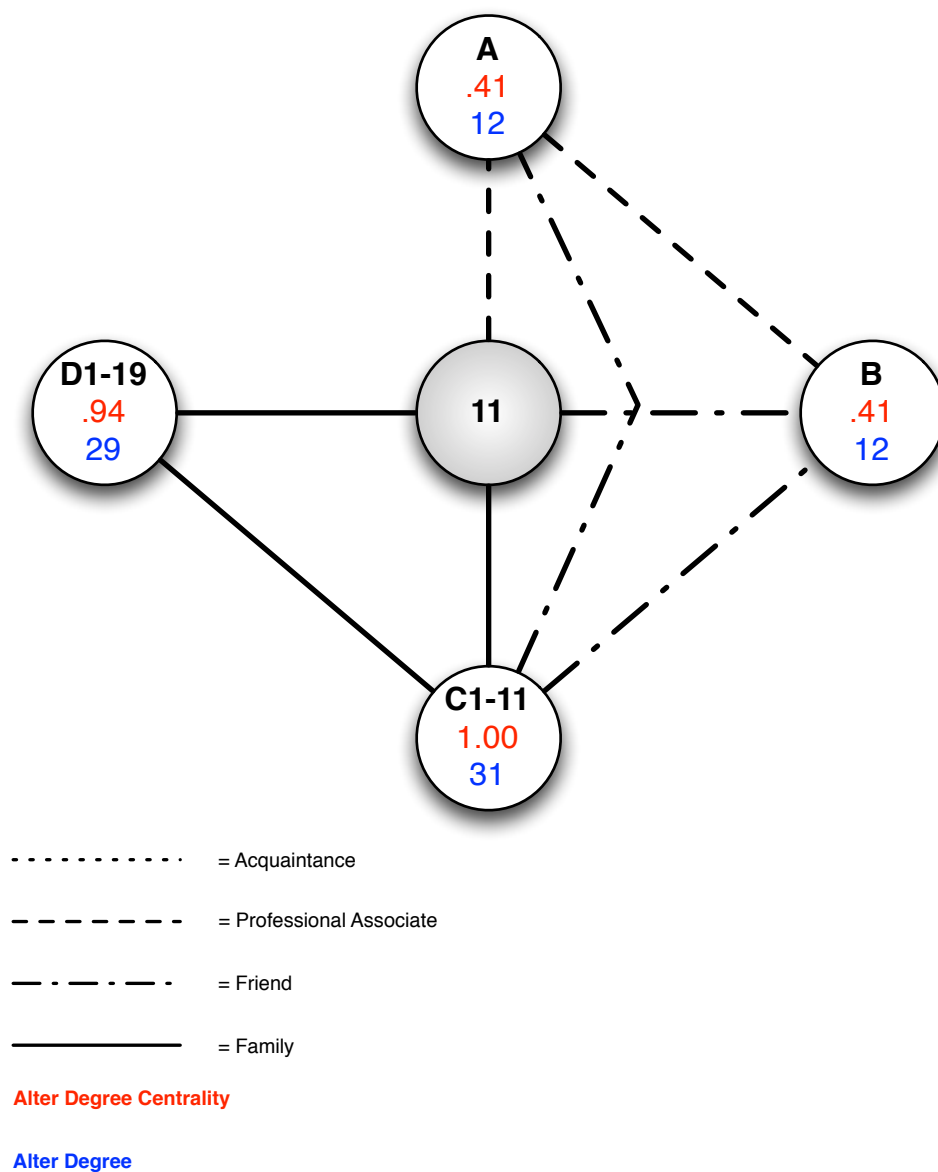
Table 16: Farmer #11 Support Network Roster

Code	Role/Job	Relation	Gender	Age	Race	Nationality	Length	Occupation
A	Manager	Pro	M	35	White	American	2 years	
B	Marketing	Fri	F	25	White	American	2 years	
C1-11	Immediate Family	Fam			Black	Somali	10+ years	
D1-19	Extended Family	Fam			Black	Somali	10+ years	
Avg.		3.91						

Table 17: Farmer #11 Support Network Relationship Matrix

Code	D1-19	C1-11	B
A	No	Fri	Pro
B	No	Fri	
C1-11	Fam	Fam	
D1-19	Fam	Fam	

Figure 9: Farmer #11 Support Network Sociogram



Farmer 11 has a very dense support network where Roots staff and family are indicated as shown in Table 16. The network is characterized by three groups, Roots staff, family who knows Roots staff, and family that does not know Roots staff, as shown in Figure 9, Table 16, and Table 17. This results in a support network that is very large in size as seen in Table 16, has a high amount of redundancy due to high alter degree centralities

and high average alter degrees, a relatively high effective size, displayed in Figure 9 and Table 11, and very strong ties throughout, shown in Table 16 and Table 17.

Farmer 9's support network was similar and consists of Lansing Roots staff and family members. Farmer 9 has a unique support network in that the farmer displays a diverse group of individuals named in the network, yet a maximum density of 1.00. This leads to a very small effective size, high measurement of redundancy due to maximum average alter degree centrality and alter degrees, and a diverse set of alter to alter ties. Farmer 10 has a support network that consists of only Roots staff. The network has maximum density, high redundancy due to maximum alter degree centrality and alter degree, professional and friendly ties and a low effective size.

Support networks were found to observe homophily, defined as phenomenon that people will associate or interact with others who are similar to themselves (Neal, 2013). This concept of homophily through race and nationality was observed in 9 of the eleven support networks. Support networks were found to be much larger and consist of stronger ties throughout when compared to advice networks. This is perhaps not surprising given farmers' reliance on support from friends and families. Immigrant farmers, besides Farmer 10, were found to have larger networks consisting of family members. Immigrant farmers were found to have much more dense networks with high amounts of redundancy, suggesting that family units are large and tightly knit in these immigrant communities.

5.3.3. Hypothetical Networks

Farmers were asked the following question for what a hypothetical network might consist of for a successful farm business, "Who do you think it is important to know for

local farms to sell their products?” Most farmers identified professional relationships as key for farmers to be able to sell their products. Two farmers identified family members and friends. One farmer indicated acquaintances as key along with all of the other types of relationships. The three Nepali Burmese farmers identified Roots staff as key due to the language barriers that they face to selling their products. For other farmers, four indicate a range of roles and jobs for the person including: chamber of commerce, restaurateurs, community members, farmers’ market managers, wholesalers, farmers, customers, and “co-ops” (a term used to refer to food co-op members). These roles and jobs were indicated for a variety of reasons that primarily focused on the social and economic connections that they have in the local food economy. These characteristics are reflected in some of the farmers’ advice networks but none more so than Farmer 6. Farmer 6’s advice network can be seen below in a network roster, relationship matrix, and sociogram.

Table 18: Farmer #6 Advice Network Roster

Code	Role/Job	Relation	Gender	Age	Race	Nationality	Length	Occupation
A	CSA Manager	Pro	F	26	White	American	2 years	Roots CSA Manager
B	Roots Manager	Pro	M	32	White	American	2 years	Roots Farm Manager
C	Friend	Fri	M	35	White	American	2 years	Roots AmeriCorps Director
D	GLFB Program Director	Pro	M	38	White	American	2 years	GLFB Program Director
E	Marketing Resource & Farmer	Pro	M	35	White	American	6 months	Farmer
F	Marketing Resource	Pro	F	35	White	American	6 months	Farm market manager
G	Marketing Resource	Pro	F	45	White	American	4 years	MSU Academic
H	Food Safety	Pro	M	48	White	American	4 years	MSU staff
Avg.		2.13		36.75	White	American		

Table 19: Farmer #6 Advice Network Relationship Matrix

Code	H	G	F	E	D	C	B
A	Pro	Pro	Pro	Pro	Pro	Pro	Pro
B	Pro	Pro	No	Pro	Pro	Pro	
C	Pro	Pro	No	No	Pro		
D	Pro	Pro	Pro	Pro			
E	Pro	Pro	Pro				
F	Pro	Pro					
G	Pro						

Figure 10: Farmer #6 Advice Network Sociogram

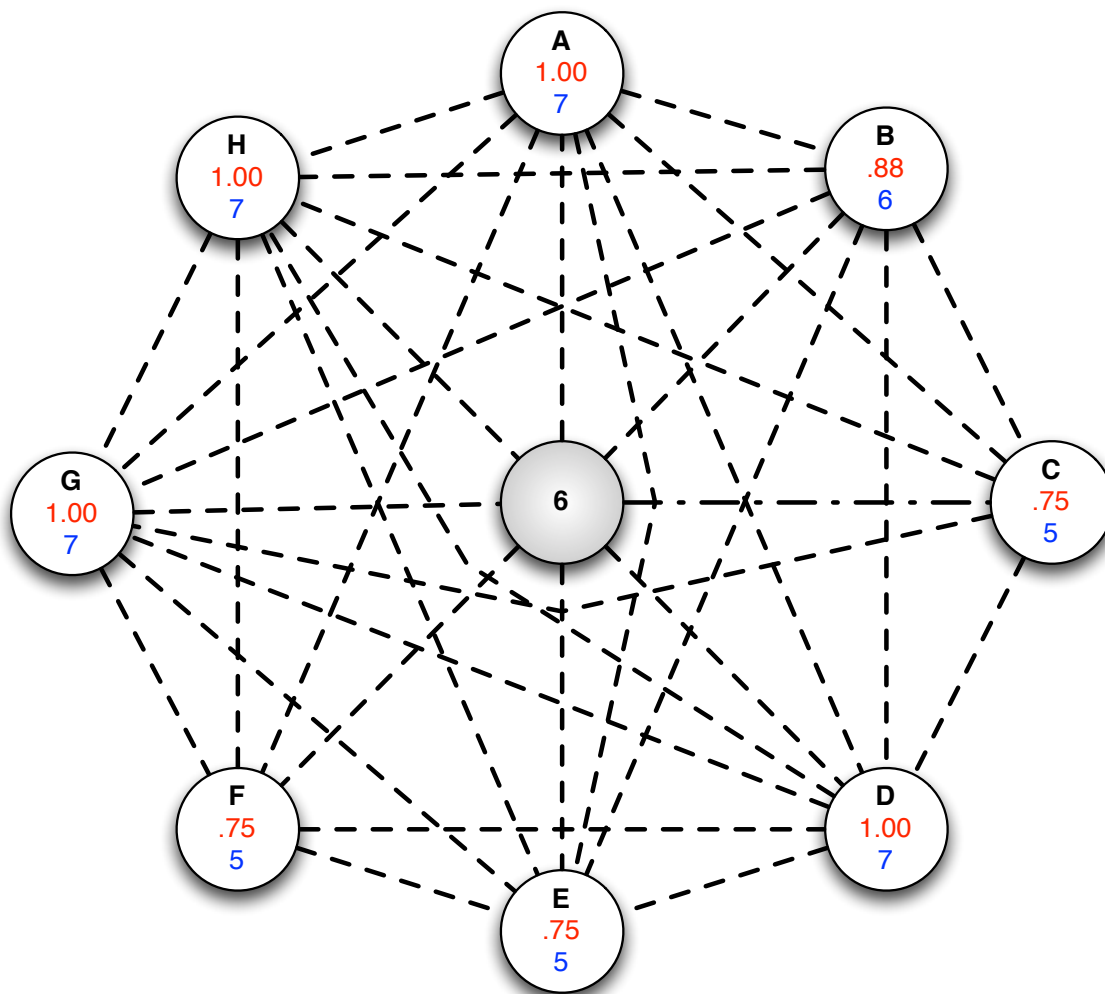


Figure 10 (cont'd)

- - - - - = Acquaintance
- - - - - = Professional Associate
- . - . - . = Friend
———— = Family

Alter Degree Centrality

Alter Degree

Despite the relatively low effective size and high level of redundancy and density displayed in the network, the network identified is tremendously well positioned in accordance with the farmers' hypothetical network; this can be seen in Table 19 and Figure 10. All of the individuals named in the network reflect the ideals named by the Roots farmers as model individuals. This includes four members of the Lansing Roots staff, as seen in Table 18. The dominating characteristics of this network appears to be multitude of professional ties and the fact that the individuals named are all white and American. One farmer spoke to this racial connotation of asking key figures for advice:

Just its an interesting observation we are going through all the people that we had discussed, all of them are Anglo, I'm being Latino. That it is interesting that in my own culture I don't turn to or don't view what I guess farming as something that perhaps because of its proximity to migrant work. Yeah I guess so, perhaps. Yeah, not that they are not acquaintances who are supportive of me when I'm, when it's a political event or it has to do with my career. They are there for me but for farming, nah, there's not really been an interest. They just as soon buy jalapeños at a quarter a pound or 99 cents not 2.50, okay? (laughs) No, I have found that it is the Anglo market that is going to be more lucrative. That seem to put value on that, so I guess that's probably why so

much of what I am doing here, the network I am establishing is predominantly white. –

Farmer 1

When asked who influences their marketing, farmers overwhelmingly identified Lansing Roots staff and the CSA program as the primary influence in what they decided how they market their products. This can be illustrated through one farmers' statement:

We are very dependent on it right now. You know the process that they use to help farmers decide what to plant at the beginning, they have you do a crop inventory... So we listed all the things that we wanted to grow based on what we consume. So we did all of these things because we really wanted to learn how to grow well the things that we use a ton of. And so then they looked over our list and said well we are giving the bid for this crop to this farm because they were here last year and they get dibs right. So there was this kind of negotiation thing that happened and we depended on them a lot because they can see the whole picture of, okay, we're brand new farmers, we don't know what we are doing. These will be easy enough for you guys to handle and the timing is based on enough for you guys to get that done before you have to deal with this. So we relied on them a lot, this year, to decide on what we were going to produce.

– Farmer 5

Other responses included customers, the local food hub, friends, and community members. When farmers are asked about who influences their production responses were split between the Roots staff and the CSA program and their community. It did however seem that there was a strong preference towards growing crops that suit their

communities and target customers. Immigrant farmers and farmers of different communities tended to display a preference in growing culturally appropriate vegetables to suit the tastes of their community and family. Other farmers displayed an affinity to grow products that they found easier to grow or that they consumed more at home. Additionally, some farmers indicated they grew things that got a higher price at market due such as heirloom tomatoes, value-added products, and salad mix greens. This displays the critical role that cultural preferences and networks play in farmer production and dietary preferences.

5.4. Network Costs And Benefits

When asked what the primary benefits of their markets were farmers indicated the Roots staff assistance for growing and marketing. Farmers also indicated emotional support as a primary benefit of their networks. When asked what the main benefits of their networks were, two farmers stated:

They are highly respected... They are like that old E.F. Hutton commercial, when they speak, people listen. – Farmer 1

The main benefits for me this year is my skill that I learn. And the second is the money that I make and the third one is the food I am enjoying. – Farmer 4

All of the farmers indicated obtaining farming or marketing information from their networks. All but one of the farmers mentioned the supportive nature of their networks as a benefit. This was particularly emphasized among the Sudanese immigrant community

and within farmer families. All eleven farmers, with very little variation, identified as gaining farming skills from their network as a benefit, in particular as a result of their relationship with the Lansing Roots staff.

Only one farmer mentioned a monetary cost to setting up and maintaining the relationships in their network and that was the 20% fee the Roots program takes from sales. Another indicated hard work on the farm as a cost. All of the other farmers either indicated no cost or simply the non-monetary cost of time and effort to commit to relationships. This point was perhaps best illustrated by one farmer when asked what the cost of maintaining these relationships were:

Oh the occasional cup of coffee. You do have to visit these people, you do have to go and it's not about gift giving, its about going and you know, send them a text, send them a... you just stay, you are not just a fair weather friend. You do care, you need to know who their kids are, you need to know what school their kids are in, you need to know if the kids graduating and you know if the kid just cut a record, you need to know if somebody has got cancer. You need to know if their old man is alive or dead. You need to know these people. You need to be invested in that relationship. – Farmer 1

5.4.1 Markets Accessed

All eleven farmers indicated that these relationships led directly to market sales or monetary benefits. They all indicated that they could continue to offer these kinds of benefits in the future. Only one farmer indicated that their network led directly to accessing a market outside of the Roots program CSA, wholesale accounts, or the market at the capital event and they stated that their network afforded them access to the local area food

hub. Ten of the eleven farmers indicated their network led them to access the Roots market opportunities. This was then reflected in the actual sales of the farmers. Table 20 below displays the break down of actual sales for each farmer:

Table 20: Consume/Sell Matrix

Farmer	Sell	Eat/Give-away	Notes
1	90%	10%	
2	75%	25%	
3	60%	40%	Both Eat & Give-away
4	50%	50%	
5	95%	5%	
6	90%	10%	
7	75%	25%	5% Give-away
8	100%	0%	95% CSA- 5% Community
9	75%	25%	
10	75%	25%	
11	66.67%	33.33%	
Average	77.42%	22.58%	

This break down of consuming and selling is exemplified with one farmer saying:

We sold most of our things because of knowing them (Roots). – Farmer 11

All of the farmers indicated they sold their products in the Roots CSA program. Four farmers stated that they sell their products within their community. Two other farmers specifically mentioned the farmers market at the capital as a way they sold their products. Three farmers mentioned assistance in price setting as particular piece of information and advice they sought out from their networks. When asked what sort of information they obtain from their networks two farmers stated:

In regards to marketing and growing, how to produce what the group wants, what to produce, how much to grow something and how much to sell something. You know just

prices... I have a better understanding of setting prices, I have a better understanding of how to build relationships with buyers, I have a better understanding of how to grow food in general. – Farmer 7

How to farm, how to not, how to market, what works, what doesn't. How to find information... Pricing, what the market, yeah all that stuff. Presentation, legal issues, I mean there is certainly a lot of food safety issues. I mean just generally, general information about the industry standards. – Farmer 5

5.5. Longer-Term Outcomes

5.5.1. Self-Efficacy

Farmers were asked how ready they felt to begin a successful farm business in three stages, when they began the program, now, and in the future. All of the farmers indicated progression in their own evaluation of how well prepared they were to begin a successful farm business. One farmer said:

I mean, we were not farmers when we started and now we are farmers. I 6 months ago I was uncomfortable calling myself a farmer, now I'll say, yeah I'm a farmer. Whether I totally know what I'm doing or not, I think I'm doing fine. – Farmer 5

When asked how ready they felt they were when they joined the program all of the farmers except for three farmers that indicated they were not in any way prepared. One farmer indicated he felt well equipped and felt the same for starting a farm business now and in the future. Another farmer indicated she was a little ready and is a little more ready

to start a successful farm business today. All of the American farmers indicated that they felt they would be ready to start a successful farm business in the future. Two of the farmers added the qualifier that they would be ready if they decided to pursue a farm business. All of the immigrant farmers indicated they were not ready to start a farm business today but felt better prepared than before. One farmer indicated he felt his readiness would be better in the future. Three immigrant farmers expressed that they felt they could not start a successful farm business in the future. As discussed earlier the language barrier for selling their products is something that the farmers are very aware of and it leads to this lack of self-efficacy for starting a farm business amongst these farmers. This can be shown with the farmers stating:

If I were to speak or know how to speak or read English then I feel like I would be able to sell products. I would talk to people go out, seek for help, and be able to sell my products.... If I were to speak English I feel like I would be able to do it on my own too.

– Farmer 9

If I spoke in English I would do better than this. I would talk to them but these days I cannot understand so I know the names of the vegetables that I plant now. – Farmer

10

When asked how they felt about their own ability to market products in the area, farmers responded with mostly negative attitudes towards their own ability. Farmers responded:

Not strong at this point (because) I mean we are dependent on others but I mean we are marketing through people. So I guess in that sense it's strong. I guess so but I feel like its because we've relied on all the work that (Roots staff's) done through the CSA and we just haven't had to do that much ourselves so marketing has been easy. So yeah I can see what you are saying that it could be seen as strong because yeah, we are marketing successfully. We just haven't had to do much ourselves. I mean we have a market for all of our food and in that case it's strong but it is not strong in that it is not resilient, if it didn't have one person, then it would all fall through. – Farmer 2

Personally I didn't have access to any markets because they are my way of marketing... That's the way I escape marketing things. I don't go for selling, selling it myself. – Farmer 3

I have CSA's cooperation. Which I would not, there's no way I would have done this... They are like my incubator. If they don't ask for product, I will get discouraged real quick. Real quick, if they don't buy stuff. – Farmer 1

I haven't sold it by myself but I give it to (Roots staff). As for (Roots staff), they sell it to CSA or some other markets. Since I don't now the language I told them in the beginning that I wont be able to sell them. So I just give my product to them and they sell it for us. – Farmer 9

Only one farmer responded with a positive outlook on marketing his products due to the help he receives from Roots staff and the local food hub. When asked about other farmers in the program's ability to market their products, all of the farmers indicated positive responses feeling that there were places to sell products in the area and that other farmers seemed happy. It is interesting that despite not feeling positively about their own ability to market, all of the farmers saw their farming peers as having strong ability to market their products in the area.

5.5.2. Quality Of Life

When asked about their quality of life, all of the farmers indicated a high quality of life. Three farmers even indicated that farming was, in part, a reason their quality of life had improved. One farmer, when asked how her quality of life was said:

I think it is successful, if it wasn't I wouldn't be able to grow all those vegetables. –

Farmer 10

5.5.3. Intentions And Plans

Farmers were asked about their marketing and farming plans in the beginning of the interview and then later asked about their selling and farming goals. Within the study's conceptual framework an indicator for start-up success demonstrating goal setting is an important for the success of a start-up entrepreneurial enterprise. One farmer did not demonstrate goal setting and marketing planning. The same farmer did express plans to scale up his farm to a larger area. Four farmers did not indicate farming plans beyond farming on the incubator farm location. Three immigrant farmers did not indicate selling

goals or plans outside of the incubator farm setting either. This is tied to the language and transportation barriers that they face when marketing their products. One farmer indicated plans to farm and market cooperatively in the future, even if she does not plan on farming after this season in the short term.

Two farmers directly indicated selling and farming goals oriented at starting a farm business directly after their experience in the Lansing Roots incubator program. This was illustrated with the following statements:

My selling goal is like, to start from a small business to contribute to like, to a store because maybe more in the store later and because I can see a lot of immigrants come to this area. – Farmer 4

My career, my long-term goal is to be a businessman. To start my own business. Mostly going to be farm business, like a farmer, it could be farmer market or have my own farm. – Farmer 4

One particular farmer demonstrated precise figures when goal setting for his farm and selling activities, noting a desire to fill a precise market niche in the local food economy. His advice network and prior farming experience inform those plans and aspirations. Three farmers all indicated a variety of plans and goals ranging from providing jobs, to short term sales targets, grow for personal consumption, and marketing value-added products.

6. Conclusions

The study of emerging farmer personal networks role in market access and start-up farm success yields a tremendous amount of insight into the realities of farmers participating in a incubator farm program like Lansing Roots. It is worth noting that the study did not find progression for farmer self-efficacy or advice networks composition in relation to the time that a farmer has been enrolled in the program. The farmer that achieved many of the indicators of start-up farm success did not achieve an advice network composition with a large total size and effective size. The farmer's advice network did model the ideal hypothetical network presented by other farmers and he demonstrated a high level of self-efficacy, precise goal setting, and a market farm definition of success. The characteristics of the advice network display a multitude of professional relationships with Roots staff, academics, and local food system experts. These key network actors in the food system who provide advice to emerging farmers in the network were all white and American. One farmer illustrated the importance of these key actors by saying:

They are experts in the fields and they have been working in the food systems for longer than we have so information on growing techniques. Growing and marketing. On what sells and economics behind it. – Farmer 2

This point is exemplified with the structural equivalence of Roots staff in advice networks providing information, advice, and educational opportunities to enable farmers to access markets and increase their farming skill level. We see this prominently featured in farmers' advice networks with the near even six to five split of farmers who have an advice network outside of Roots staff.

It is these findings of staff as key network boundary spanners for advice when marketing and selling products that provides an opportunity for usefulness for the Lansing Roots program and for incubator farm programs like it. Promoting networking activities, either constructing or maintaining, outside of the immediate incubator farm social setting is clearly key for emerging farmers to be able to access local markets and establish necessary entrepreneurial business contacts for their farm. Perhaps this is the role of local non-profits such as food hubs or farmers markets to help facilitate these interactions between farmers and well connected individuals in the local economy. Perhaps it is the role of institutions such as the university extension system or local chambers of commerce to cross these social boundaries. All of these avenues were discussed at one point by farmers within the interviews and serve to suggest the need for incubator farm programs and public policy initiatives to aid in the facilitation of these types of social spaces and interactions being pursued by emerging farmers.

The advice networks of farmers was found to not observe the concept of homophily, where alike actors are drawn together within a network, when compared across all of the farmers. It emerged however, that being an American was key in the establishment in diverse advice networks. This alludes to the idea of pre-existing relationships as being key in establishing networks that are rich in information and entrepreneurial usefulness. I hypothesize that within this incubator setting, there is a measurable benefit to being an American and having access to better local markets. Therefore, there is a strategic advantage in knowing how to navigate the complex social interactions required for emerging farmers to establish advice networks and coordinate market access as a start-up farm.

Large support networks highlight the importance of the structural equivalence of families when celebrating farming successes. Immigrant support networks are characterized as being large, having very strong ties, and being very dense. Farmers indicated no difference between constructing and maintaining their personal networks. Americans demonstrated a concerted effort to build their personal networks and market their products outside of the growing season. Immigrant farmers, specifically the Bhutanese, indicated only pursuing marketing in a limited basis during the growing season. These limited network construction and maintenance opportunities likely stem from the selling and farming barriers experienced by farmers. Primarily, language emerged as a barrier for immigrant farmers that leads to relatively more limited advice networks and limits their ability to start successful market farms in the future. It is encouraging to find larger support networks for emerging farmers demonstrating a well-developed system of emotional support for farmers in this rigorous and challenging incubator setting for an emerging farmer facing many new challenges. This demonstrates a certain amount of resiliency amongst farmers who enter the local economy and farming community at a very uncertain time for what the future of food and farming is in the world, country, state, region, and community. Many farmers indicated a shared experience and feeling of togetherness with other farmers, and cited an intrinsic belief in the value of farming, particularly in such an intimate setting, such that the passion on display at the Lansing Roots incubator farm is the primary asset to the program and emerging farmers as they progress through the program and their own personal journeys in farming.

For all of the emerging farmers success is uniquely defined and their incorporation into the local food economy is aided tremendously by their participation in the incubator

farm program. The CSA program allows for farmers to gain expertise growing in a market oriented setting and the Roots staff comprises a large section of farmers' networks when seeking advice selling and marketing their products. It appears that further research is needed to examine the entrepreneurial opportunities within this incubator farm setting. It would be very interesting to see more of this type of research to see the differences and similarities across emerging farmers in a multiple incubator contexts. Further research into nascent entrepreneurs as small farmers through the utilization of new economic sociological methods, such as network analysis, would serve to further the work of this study to provide a basis of scholarship and literature for incubator farm programs to strategically promote networking activities and market access for emerging farmers.

Farmer goals, plans, and aspirations remain critical when contextualizing these conclusions in the way that start-up farm success and farmer networks depend largely on the farmer's own ambition and desire to begin a successful farm business. It is crucial in the formation and maintenance of personal advice networks for the farmer to have the goal of selling produce to the local market in order to construct a useful network for market access. It is important then, to gain a better understanding of farmer attitudes and behaviors of emerging farmers as they seek to enter the local economy, especially from an incubator farm setting.

The study findings are limited in their widespread usefulness in that the study is conducted in a very specific context, however lessons from these eleven farmers' experiences can be drawn upon by incubator programs, policy makers, and emerging farmers to learn from their experiences and perspectives. Krebs and Holley (2006) have made a series of recommendations for emerging food entrepreneurs' networks to reduce

reliance upon singular hubs in a similar context to that found at Lansing Roots. It revolves around two key concepts: The first is knowing the network through evaluating networks of individuals. The second is expanding the network through an iterative and continuous process of network knitting designed to “connect on your similarity, and profit from your diversity (pp. 12).” The Lansing Roots farmers advance their networks by pursuing these ideals of knowing and knitting their network. A clear limitation to these strategies among the Lansing Roots farmers is the limited time spent networking by the farmers in the program. With nine of the 11 farmers indicating they spend two or less hours per week networking there is a clear opportunity for targeted “knitting the network” opportunities for the farmers.

A clear limitation to selling the farm products outside of Lansing Roots direct markets emerges due to an over-reliance upon Lansing Roots staff for providing market access opportunities and accessing sources of marketing and selling advice. This reliance upon Lansing Roots staff for access to selling and marketing advice is especially dramatic among immigrant farmers. There is a clear opportunity then for a social service targeted initiative to aid immigrant and emerging farmers in the establishment of advice networks outside of the immediate staff of the incubator farm program. It should be noted that following the conclusion of this study and during the data analysis process the Lansing Roots program took steps to decrease the noticeable language and cultural barrier by creating a position within the organization. The newly created staff position was for an immigrant liaison with a specific emphasis on language skills geared towards program participants. It is interesting and should be noted then that this reliance on the Lansing Roots staff creates a culture and system of dependency within the marketing strategies of

the farmers in the program. It is certainly not clear if the program initiatives or the new staff position moving forward will help or harm this dependence.

A fair critique of the incubator farm program at Lansing Roots is the farm's classification of participants as farmers. The USDA (2009) classifies farms as producing \$1,000 worth of products in a given year. It seems that this definition of a farmer may technically suit all of the farmers in the incubator program but to suit a more culturally relevant definition it seems as though many of the program participants have little or no desire to become what society may view as a "farmer". It seems as though many program participants may fall under the purview of something akin to a market gardener.

Regardless of the term used, it is clear that integration into the local food system by many farmers in the program may not be possible or desired with the current nature of their participation in the incubator program.

Farmer advice networks and farmer identified hypothetical ideal networks place an emphasis on seeking advice from well-connected members of the local food community. This means advice networks with a relatively low effective size and presents an opportunity for the provision of social service initiatives to facilitate network connections. Incubator programs would do well to seek to encourage as many opportunities for farmers to interact with these important boundary spanners as possible and emerging farmers would do well to seek out these individuals for advice. Farmers indicated that these connections were made at conferences and workshops and policy makers should take note of the importance to encourage social spaces and meetings that allow for emerging farmers and key food system players to interact and form relationships. It should also be noted for emerging farmers that the study found a high amount of reliance, or diverse sets of ties, in

the networks where farmers pursued advice from friends and family members. However, I did not examine the need quality or quantity of the advice that was received in the advice networks and this is one area where further research is strongly encouraged. A deeper examination of the type of advice that emerging farmers are obtaining and what sort of advice is perhaps most useful or adventitious to the farmers is encouraged. An examination in into the type of advice in networks would aid in illuminating the characteristics of networks diversity, effectiveness, and relative quality.

The study findings suggest the importance of goal setting and a market oriented definition of success for emerging farmers in an incubator setting. The study concludes that farmers who demonstrated specific market oriented goals and definitions of success, displayed more developed advice networks with more diverse ties, alters, and a larger network size. The concept of the chicken and the egg arises with this conclusion however, with the question of whether the farmers' goal setting and outlook from the onset has brought about their social connections for seeking advice or if the ability to seek out advice from a diverse set of ties has led farmers to have a more ambitious outlook towards their own farming future.

APPENDICES

Appendix 1. Farmer Interview Guide

Figure 11: Farmer Interview Guide

Farmer Interview Guide

Section 1

Introduction: You are being asked to participate in a research project that is seeking to learn more about emerging farmers and market access. I am hoping you can help me with your unique knowledge of farming and the Lansing Roots program. I hope to use this information to construct an idea of what the unique circumstances are around market access and farmers personal networks are in this area. I am also pursuing this research as part of my master's thesis and your participation will help me tremendously achieve this personal and professional goal. The interview will take 30-45 minutes and you may stop at any point if you feel uncomfortable. Your survey answers will be seen by only the interviewer and the project researchers at Michigan State University. All names will be altered in the final report.

Participation in this interview and study is completely voluntary. You may skip any questions that you do not wish to answer. If you do not wish to participate, it will not affect your relationship with the Lansing Roots program or Michigan State University. If you have any further questions or concerns you can contact me, Christian Scott, at XXX-XXX-XXXX or email at scottc14@msu.edu or Michigan State University's Internal Review Board at 517-355-2181 or email at gorner@ora.msu.edu. At this time, if I may ask, on this date _____ do you consent being a part of this study and having your interview answers recorded? Thank you so much for participating. Do you have any questions?

Antecedents- To start off I would first like to ask you some basic questions to gain an understanding of you and your household:

Demographic questions:

- Name:
- Gender:
- Age:
- Race:
- Nationality:
- Income bracket: less than 20k, 20-50k, 50-100k, 100k+

Do you have another occupation, job, or career? If so, what kind?

How far along in the project are you (how long have you been in Roots)?

Can you tell me about your household?

Farm Typology: Now I would like to ask you some basic questions to understand your farm.

Figure 11 (cont'd)

Can you tell me about your farm?

- What do you grow?
- How do you farm?
- Who works on your farm (number of rows)?
- How large is your farm?
- How long have you been farming?
- Where did you learn about farming?

Why are you farming?

Do you personally consume your products?

Do you sell your products? (in percentages)

- If so, how much, where, and to who?

How do you see local food in the area?

What kind of farming and marketing resources do you have access to?

What kind of farming and marketing resources do other farmers in the program have access to?

Aspirations: Now I would like to ask you some questions regarding your aspirations and plans.

Can you tell me what success would look like for you and your farm?

- How do you think you can get there?

Can you tell me what success might look like for other farmers in the program?

Can you tell me about your future plans for farming?

Can you tell me about your future plans for marketing?

How do you feel who you know influences your production?

How do you feel who you know influences your marketing?

How do you feel about your ability to market products in this area?

- And for farms like it?

Section 2

Figure 11 (cont'd)

Networking Activities: In this section I am hoping to gain an understanding of your network activities. Basically how you construct and maintain your personal networks.

How much time do you spend networking (building a personal network)?

- On a weekly basis?
- On a monthly basis?
- How about specifically for marketing purposes?
- Does this differ depending on the time of year? If yes, how so?

What, if any, are these networking activities or strategies?

How often do you pursue these specific activities?

How about maintaining these contacts, is this any different?

How do you meet people in the local farming community?

How do you meet people who are potential consumers?

Section 3

Network Characteristics: Now I am going to ask you a series of questions designed to gain an understanding of your personal network as it relates to market access and celebrating success. For this section I will ask you what is called a name generator question, please feel free to name as many or as few individuals who you feel is relevant to the question.

Who do you discuss or seek advice from when marketing and selling your products?

- What is their job or role?
- Are they a friend, family member, professional associate, or acquaintance (relation)?
- Can you tell me a little about them?
 - How did you meet them?
 - How long have you known them?
 - Their characteristics and professional role in relation to you?
 - Age, Race, Gender, Nationality, Occupation

Figure 11 (cont'd)

Name	Role/job	Relation	Characteristics

For this section I would like to inquire if the individuals in your network know each other and the nature of their relationship. Please answer each relationship question to the best of your ability.

Question: As far as you know, do _alter-a_ and _alter-b_ know each other? If yes, what is the nature of their relationship?

Name of Alters										

Classification of relationships: Family, Friend, Professional Associate, Acquaintance

Who do you celebrate selling and farming milestones with? **Example of a milestone: starting your own CSA.*

-What is their job or role?

Figure 11 (cont'd)

-Are they a friend, family member, professional associate, or acquaintance (relation)?

-Can you tell me a little about them?

-How did you meet them?

-How long have you known them?

-Their characteristics and professional role in relation to you?

-Age, Race, Gender, Nationality, Occupation

Name	Role/job	Relation	Characteristics

For this section I would like to inquire if the individuals in your network know each other and the nature of their relationship. Please answer each relationship question to the best of your ability.

Question: As far as you know, do _alter-a_ and _alter-b_ know each other? If yes, what is the nature of their relationship?

Name of Alters											

Figure 11 (cont'd)

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Classification of relationships: Family, Friend, Professional Associate, Acquaintance

Who do you think it is important to know for local farms to sell their products?

- What is their job or role?
- Are they a friend, family member, professional associate, or acquaintance (relation)?
- Can you tell me a little about them and why you see them as important?
- What are their characteristics and professional role in relation to you?

Section 4

Markets Accessed: Now I am going to ask you some questions designed to understand what sort of benefits or costs come from these networks.

What do you see as the main benefits of your network (knowing these people)?

Do the contacts yield any material goods or sales? If so, what?

- Could they in the future?

Do you get valuable information from your network? If so, what sort?

- Do you get emotional support? If so, how so?
- Do you get advice? If so, what sort?

- What are the costs of setting up these networks or relationships?
- What are the costs of maintaining these networks or relationships?

Section 5

Longer Term Outcomes: Now I would like to ask you some questions designed at understanding what this all means.

When you started the Roots program, how well equipped do you think you were to begin a successful farm business?

At this point in the Roots program, how well equipped do you think you are to begin a successful farm business?

Figure 11 (cont'd)

What do you perceive to be your readiness to start a successful farm business in the future?

How do you perceive your quality of life?

What are your selling goals?

What are your farming goals?

Have you gained any new skills through your network? If so, what skills?

Have you gained any new skills through your involvement in the Roots program?

Have you accessed new markets because of/through your network?

Have you accessed new markets because of/through your involvement in the Roots program?

Thank you so much for taking the time to help me today.

Thank you so much for participating in this interview. Is there anything else you would like to add?

Thanks so much.

Appendix 2. Additional Alter Relationships

Figure 12: Additional Alter Relationships

For this section I would like to inquire if the individuals in your network know each other and the nature of their relationship. Please answer each relationship question to the best of your ability.

Question: As far as you know, do _alter-a_ and _alter-b_ know each other? If yes, what is the nature of their relationship?

Name of Alters										

Classification of relationships: Family, Friend, Professional Associate, Acquaintance

Can you tell me a little bit about each person's characteristics:
-Age, Race, Gender, Nationality, Occupation

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