

Exploring Immigrant Farming Programs and Social Capital:
A Mixed Method Approach to Program Evaluation

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ABSTRACT

African immigrants in the United States (U.S.) experience immense challenges in the form of poverty, unemployment, and underemployment. One strategy used by community development organizations to address these challenges is the development of farm entry programs that assist immigrants in beginning and sustaining farm operations in the United States. Organizations such as Cooperative Extension, resettlement agencies, and African mutual aid associations have developed beginning farmer programs that provide a supportive foundation for immigrant farmers to gain access to farmland, technical training, and markets. Returning to farming provides African immigrants with a series of benefits including supplemental income, food security, and social integration. Drawing upon social capital theory, this study offers a novel approach to measure the community and economic development outcomes of immigrant farming programs. In this mixed-method program evaluation, immigrant farming programs are analyzed as social networks that connect immigrants to technical training, farming resources, and community members who can provide access to markets. Data were collected through a survey of 112 agricultural educators working with immigrant farming programs across the United States. Data were also collected through case studies of a Midwestern program and a Southern program. The case studies include two focus groups and 20 interviews with individuals associated with the programs as participants, agricultural educators, and community partners. Regression tests were conducted to determine the social capital factors associated with well-being outcomes occurring through the programs. The models show that interaction outside of the program, and access to information are positively associated with well-being outcomes. Analysis of variance tests show differences between programs with African immigrant participants and programs with participants from other world regions. Programs with African immigrants tend to have more requirements to use farming resources compared to programs with immigrants from other world regions. Qualitative analysis found that female African immigrant participants have a lower levels of agency compared to male African immigrant participants. The study concludes with a discussion of recommendations for implementing and evaluating immigrant farming programs, as well as applying social capital theory to the field of agricultural education.

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Chapter 1

Introduction

Michelle Obama's visit to the New Roots community farm in San Diego, California brought national attention to an emerging group of immigrant farmers living in the United States (Darcé, 2010). The first lady described the 2-acre farm as a "model for communities around the country" (Darcé, 2010, p. 1). The farm is maintained by immigrants from Africa, Southeast Asia, and Latin America (Darcé, 2010). Historically, immigrant farmers in the United States (U.S.) have come from Western Europe and the Netherlands (Brown, 2011; Vinovskis, 1976). Today, immigrant farmers in United States "are more likely to be rural subsistence farmers from Africa and Asia" (Brown, 2011, p. 1). Immigrant farmers have become a more visible part of American agriculture with their entry into farmers markets across the country. Immigrant farmers have become a mainstay in farmers markets in Seattle, St. Paul, Phoenix, and San Diego (Brown, 2011; Hill, 2011; Lebens, 2011).

Many immigrants face an uphill battle trying to become successful farmers in the U.S. These farmers face countless hurdles which are shared with the majority of new entry farmers such as gaining access to farmland for purchase or rent, and obtaining start-up capital (Ahearn & Newton, 2009). In addition, immigrant farmers also face cultural hurdles, such as limited English language proficiency and literacy (Ostrom, Cha, & Flores, 2010).

One strategy to help immigrant farmers be successful is participation in a farmer training program (Ostrom, Cha, & Flores, 2010). The programs often target beginning farmers and ranchers, or individuals who have "operated a farm or ranch for 10 years or less" (Ahearn & Newton, 2009, p.iii). These programs provide immigrants with essential resources to help

them transition from community gardens and incubator farms to owning their own farms (Brown, 2011). These farming programs offer educational training in a range of topics including growing practices, pest control, irrigation techniques, soil science, growing seasons, and business development (Hill, 2011; Macy, 2011; Nickel-Kailing, 2011; Pereira, 2007; Tufts University, 2011). They also provide resources in the form of farmland, farming equipment, and utilities (Hill, 2010; Macy, 2011; Nickel-Kailing, 2011; Pereira, 2007; Tufts University, 2011). In addition, these programs provide access to local markets such as farmers markets, community-supported agriculture programs (CSAs), farm stands, and locally-owned restaurants (Brown, 2011; Snook, 2010).

Agricultural educators working in farming programs often make accommodations to meet the needs of immigrant farmers. Some programs include translators who relay information to participants in their native languages (Macy, 2011; Ostrom, Cha, & Flores, 2010). In some cases, agricultural educators have translated curricula into alternative languages or reformatted the curricula to include simple language and visual aids (Hightower & Griffin, 2012).

Few beginning farmer programs can provide this range of educational programming and resources to participants solely through their sponsoring organization. The agricultural educators often establish networks of partnering organizations that provide supplemental resources to the participants. Partnering organizations include non-profit organizations, refugee resettlement agencies, mutual aid associations, and Land-grant institutions (Brown, 2011; International Rescue Committee, 2012; Lewis, 2010; Lutheran Social Services, 2011; Macy, 2011).

Researchers explain that immigrant farming programs operate as social networks, connecting participants to a wide range of influential individuals who provide them with access

to new resources (International Rescue Committee, 2012; Lewis, 2010; Macy, 2011). Strong social networks often lead to social capital development for members in the networks (Lin, 1999). Social capital provides network members with access to resources which can be mobilized to obtain an assortment of economic, social, and physical returns (Lin, 1999).

The social networks developed through immigrant farming programs have led to a number of benefits for program participants, including supplemental income, access to culturally-relevant food, and integration into American society (Laverentz & Krotz, 2012). Farming also provides immigrants a way to return to the agrarian lifestyle that many of them experienced in their homelands (Lutheran Social Services, 2011). Farming provides immigrants with employment that helps them meet their economic needs while preserving their cultural heritage (Biro, 2011; Lutheran Social Services, 2011).

Many immigrant farming programs target African immigrant farmers. Farming programs have been established to support African immigrant farmers in Vermont, Arizona, Idaho, Washington, and Virginia (Biro, 2011; Brown, 2011; Macy, 2011). These programs often cite two primary reasons for targeting African immigrants: 1) many African immigrants have experience farming, and 2) African immigrants, particularly female immigrants, often have difficulty finding employment in the U.S. (Brown, 2011; Darcé, 2010; Hightower, 2011; Macy, 2011; Manirakiza, 2010). Subsistence farming is pervasive in many African countries, including Somalia, Sierra Leone, Sudan, Liberia, and Cameroon (Brown, 2011; Darcé, 2010; Hightower, 2011; Macy, 2011). African immigrants bring with them diverse agricultural skills ranging from low-input crop production to goat herding (Brown, 2011; Darcé, 2010; Macy, 2011).

African immigrants often have limited English language proficiency which restricts the options they have for employment in the U.S. (Manirakiza, 2010). Female African immigrants often have an especially difficult time finding employment because they have not held jobs outside of farming to support their families (Manirakiza, 2010). As a result, African immigrants are more likely to work in unskilled service occupations compared to other foreign-born populations (Reed, Andrzejewski, & Strumbos, 2010; Terrazas, 2009). Roughly 19% of African immigrants live at or below the poverty line, compared to 16% of other foreign-born populations and 13% of the native-born population (Reed, Andrzejewski, & Strumbos, 2010; U.S. Census Bureau, 2010).

PROBLEM STATEMENT

African immigrants in the United States face a multitude of economic, social, and physical challenges (Manirakiza, 2010; Reed, Andrzejewski, & Strumbos, 2010; Terrazas, 2009; U.S. Census Bureau, 2010). African immigrants have turned to farming as a way to overcome these challenges (Brown, 2011; Darcé, 2010; Hill, 2011; Lebens, 2011). Key to African immigrants becoming successful farmers in the U.S. is participation in immigrant farming programs (Biro, 2011; Brown, 2011; Macy, 2011; Ostrom, Cha, & Flores, 2010). Immigrant farming programs provide African farmers with educational training and farming resources, as well as connections to additional individuals who have access to additional forms of training and resources (Biro, 2011; Brown, 2011; Macy, 2011; Ostrom, Cha, & Flores, 2010). African immigrants who participate in immigrant farming programs become members of social networks which in turn facilitates the development of social capital within the programs (International Rescue Committee, 2012; Lewis, 2010; Macy, 2011). There is a need to understand how social

capital is developed through immigrant farming programs, and the well-being outcomes generated by these programs. This information provides practitioners will valuable information about what program characteristics contribute to well-being outcomes for participants of the programs. This study explores the development of social capital within immigrant farming programs.

RESEARCH QUESTIONS

The guiding question for this study is “How, if at all, is social capital developed in immigrant farming programs?” In order to explore this question, the following quantitative, qualitative, and mixed method research questions were investigated.

1. What programmatic characteristics contribute to the development of social capital among immigrant program participants? (*Quantitative*)
 - a. What types of *embedded resources* within the programs contribute to the development of social capital among immigrant program participants?
 - b. What characteristics within the programs contribute to the development of *social ties and networks* among immigrant program participants?
 - c. What characteristics within the programs contribute to the development of *agency* among immigrant program participants?
 - d. What characteristics within the programs contribute to the development of *trust and reciprocity* among immigrant program participants?
2. How does social capital development within immigrant farming programs contribute to the well-being of immigrant program participants, if at all? (*Mixed method*)
 - a. How do *embedded resources* within the programs contribute to the well-being of the immigrant program participants, if at all?
 - b. How does the development of *social ties and networks* among immigrant program participants contribute to their well-being, if at all?

- c. How does the development of *agency* among immigrant program participants contribute to their well-being, if at all?
- d. How does the development of *trust and reciprocity* among immigrant program participants contribute to their well-being, if at all?
- 3. How does social capital development within immigrant farming programs that include African immigrant participants differ from immigrant farming programs with immigrant participants from other world regions, if at all? (*Quantitative*)
- 4. How does the gender of the participants affect social capital development within immigrant farming programs that include African immigrant participants, if at all? (*Qualitative*)

CONCEPTUAL FRAMEWORK

Social capital theory

Social capital theory provides a conceptual framework to understand social capital development within immigrant farming programs. As previously mentioned, immigrant farming programs can be viewed as social networks that connect immigrant participants to educational training and agricultural resources, as well as prominent individuals within the community who offer access to additional resources and training (Lewis, 2010). Social capital theory describes how 1) social networks are constructed, 2) relationships are built among members in the networks, 3) social capital is generated, and d) the expected returns for members of the network (Bourdieu, 1986; Coleman, 1988; Lin, 1999).

This study has been shaped by the seminal work of Bourdieu, Coleman, Putnam, and Flora and Flora in the area of social capital theory. Bourdieu (1986) was one of the first researchers to define social capital. He explained that social capital was unique and separate from economic capital and cultural capital. Coleman (1988) explored characteristics within relationships that facilitate the development of social capital, including trust, reciprocity, norms,

and sanctions. Coleman investigated social capital development at the micro-level within local ethnic enclaves and families.

Putnam (1993) considered social capital development at the macro-level across regions and nations. He viewed social capital as an extension of civic engagement. Putnam (2000) defined civic engagement in terms of a series of civic activities, such as voting and volunteering for community organizations. Putnam argued that civic engagement within communities leads to social capital development which in turn results in economic development for the community.

Flora and Flora (2008) explained social capital within the larger framework of community capitals. Community capitals are resources present in a community which can be accessed and invested by the community. Social capital is one of seven types of capital which exist in a community. Flora and Flora (1993) argued that communities that facilitate the development of social capital create an environment in which entrepreneurial activities flourish. This environment is known as entrepreneurial social infrastructure.

Lin (1999) integrated the work of the previous researchers into a single model that described the process of social capital development. Lin explained social capital development in terms of collective assets within social networks (i.e., embedded resources, trust, norms, reciprocity), and the mobilization of those collective assets. Lin also described the benefits of social capital development for members, including wealth, power, and physical health.

Lin argued that social networks and members within those networks are unique. Lin described characteristics of the social networks and the members which can constrain or facilitate social capital development. He defined these characteristics as structural and positional variations. Structural variations are characteristics of social networks such as the use of technology to distribute information. Positional variations, on the other hand, involve

characteristics that are unique to the members of the networks such as educational level and socioeconomic status.

One type of positional variation is gender. Researchers have found that men and women access social capital differently within social networks (Brush, Carter, Greene, Hart, & Gatewood, 2002). Researchers have found that in some types of workplaces, men are able to mobilize social capital for early promotions at a higher rate than women (Timberlake, 2005). Within agriculture, women have been able to effectively mobilize social capital for economic gain. Researchers found that female farmers were able to leverage the social capital they had developed within community social networks, such as parent teacher associations, to generate new markets (Trauger, Sachs, Barbercheck, Brasier, & Kiernan, 2010).

The work of Bourdieu, Colman, Putnam, Flora and Flora, and Lin provide the conceptual framework for this study. Through an examination of their work, the researcher in this study identified social capital constructs to investigate further. The constructs that are explored in this study are 1) embedded resources, 2) social ties and networks, 3) agency, and 4) trust and reciprocity.

METHODOLOGY

This study has a convergent parallel mixed method design as described by Creswell and Plano Clark (2011). The researcher chose this research design because it offers a thorough investigation of a complicated phenomenon, providing breadth of exploration through a quantitative research strand and depth through a qualitative research strand (Creswell & Plano Clark, 2011). The quantitative research strand includes a national online survey of agricultural educators working with immigrant farming programs, and the qualitative research strand involves a multiple-case study of two immigrant farming programs in a Midwestern state and a

Southern state that include African immigrant participants.

SIGNIFICANCE OF THE STUDY

This study is significant for three reasons. The study helps to facilitate the entry of immigrant farmers into the U.S. agricultural system, enhance community and economic development in African immigrant communities, and extend the application of social capital theory to immigrant farming programs. The findings from this study also provide critical information to educators and practitioners working with African immigrant communities in the United States. This critical information includes programmatic characteristics which contribute to positive outcomes for immigrant participants and a set of metrics for evaluating the effectiveness of immigrant farming programs.

Facilitate the entry of immigrant farmers into the U.S. agricultural system

This study is significant because it provides critical information on how best to facilitate the entry of immigrant farmers into the U.S. agricultural system. Today, approximately 83% of farm operators are white, non-Hispanic males (National Agricultural Statistics Service, 2007). The average age of these farmers has been increasing over time. In 2002, the average age of farmers was 55 years of age (National Agricultural Statistics Service, 2007). In 2007, the average age of farmers increased to 57 years of age (National Agricultural Statistics Service, 2007). In addition, the number of young farmers entering into agriculture is declining (Gale, 2003). Researchers attribute this decline to a reluctance of young people to take over their families' farms (Gale, 2003).

While the number of white, non-Hispanic males entering into farming is decreasing, the number of minority and female farmers entering into farming is increasing (Ahearn & Newton, 2009). Between 2002 and 2007, the number of minority farm operators in the United States increased by 47%, from 61,603 operators to 90,467 operators (Vilsack & Clark, 2009). During that time, Caucasian farm operators increased only 2%, from 2,067,379 operators to 2,114,325 operators (Vilsack & Clark, 2009). The growth in white farmers between 2002 and 2007 came from an increase in female farm operators. The number of Caucasian male farm operators remained roughly constant (Vilsack & Clark, 2009). Overall, the fastest growing groups to enter into farming are minority and female farmers (Ahearn & Newton, 2009; Ostrom, Cha, & Flores, 2010).

These national trends have provided the impetus for the U.S. Department of Agriculture (USDA) to invest in the development of beginning farmer programs targeting female, minority, and immigrant farmers (U.S. Department of Agriculture, 2011). Since 2008, the USDA has invested \$75 million to develop beginning farmer training programs with a portion of these programs targeting women, minority, and limited-resource farmers (Ahearn & Newton, 2009). Between 2009 and 2011, 65 beginning farmer programs were created through the USDA initiative (U.S. Department of Agriculture, 2011).

While a number of beginning farmer programs have been created, few of these programs have been evaluated concerning their effectiveness with female, minority, and immigrant audiences. Researchers argue that beginning farmer programs that target white, non-Hispanic male farmers who often engage in large-scale commodity-based farming may not be as effective with female, minority, and immigrant farmers (Beus & Dunlap, 1990; Niewolny & Lillard, 2010; Ostrom, Cha, & Flores, 2010). They explain that female, minority, and immigrant farmers may

have different goals and strategies for farming, including farming on a smaller scale and growing diversified crops (Beus & Dunlap, 1990; Niewolny & Lillard, 2010; Ostrom, Cha, & Flores, 2010). Researchers explain that beginning farmer programs, geared toward large-scale, commodity farming, often do not meet the “social, economic, and ecological needs of today’s new farmers” (Niewolny & Lillard, 2010, p. 70).

This study is a critical first step in evaluating the effectiveness of beginning farmer programs that target immigrant farmers. This study identifies key programmatic characteristics of immigrant farming programs that contribute to positive outcomes for program participants. In addition, this study provides program coordinators with a list of metrics that can be used to evaluate their programs in terms of economic, social, and physical benefits of their programs.

Enhance community and economic development in African immigrant communities

This study is also significant because it provides critical information on how immigrant farming programs can promote community and economic development within African immigrant communities. Limited research has been conducted in the area of evaluation for immigrant farming programs. The majority of the studies that have focused on evaluating these types of programs have been conducted by granting agencies (Laverentz & Krotz, 2012; U.S. Department of Agriculture, 2010). These studies have focused on evaluating programs that have been directly funded by the agencies. While these reports provide excellent initial data they are limited in their scope, and fail to provide national data on immigrant farming programs.

In addition, few studies have focused on agricultural education targeting African immigrants in the United States. Research has been conducted on agricultural education and farming strategies for immigrant farmers from Latin America and Southeast Asia (Baker &

Chappelle, 2012; Garcia-Pabon & Lucht, 2009; Imbruce, 2007; Minkoff-Zern, 2012; Opatik & Novak, 2010; Ostrom, Cha, & Flores, 2010; Saldivar-Tanaka & Krasny, 2004). Few studies have investigated agricultural education that targets African immigrant farmers (de Koff, Pitchay, & Joshua, 2012; Tong, Tilsen, & Batholomay, 2011).

This study is significant because it provides important information on immigrant farming programs that target African immigrants. The findings from this study are essential to providing baseline data on how immigrant farming programs can be used to further community and economic development in African communities. This study also collects new national data assessing immigrant farming programs across the United States.

Extend the application of social capital theory to immigrant farming programs

This study also provides significant contribution to the application of social capital theory to immigrant farming programs. Social capital research has been conducted in the broad areas of education and agriculture. Various social capital studies have focused on education (Coleman, 1988; Grootaert & van Bastelaer, 2002; Helliwell & Putnam, 1999; Temple, 2001), agricultural innovation (Bantilan & Padmaja, 2007; Heemskerk & Wennink, 2006), agricultural trade (Fafchamps & Minten, 2001; Medicamento & Degennaro, 2006), and the management of natural resources for agricultural pursuits (Bebbington, 1997; Pretty, 2003). Little research has been conducted on social capital with regards to agricultural education (Lewis, 2010; Pretty & Ward, 2001). This study is a critical first step in establishing a link between social capital theory and agricultural education. Social capital theory provides a framework to better understand the flow of information within agricultural education programs, including types of information channels, how participants access information, and how participants mobilize information.

In addition, this study links social capital theory to agricultural education that targets immigrant communities. Previous social capital research on immigrant communities has focused on employment (Aguilera, 2003; Grasmuck & Grosfoguel, 1997; Kloosterman, van der Leun, & Rath, 1998; Portes, 2000; Sanders & Nee, 1996), education (Kao, 2004; White & Kaufman, 1997; Zhou & Kim, 2006), and integration into society (Espinosa & Massey, 1997; Tillie, 2004; Zhou & Bankston, 1994). The researcher of this study could find no research studies that explored social capital development in agricultural education programs that target immigrant populations. This study is significant because it extends the theory of social capital to agricultural education programs that serve immigrant populations. Applying social capital to programs targeting immigrant populations is critical because immigrant populations may utilize different types of information channels, and access and mobilize information differently than native American populations.

Provide critical information to community development practitioners

The findings from this study also provide essential information to guide community development practitioners in developing new immigrant farming programs and refining existing farming programs to better meet the needs of immigrant audiences. As previously mentioned, this study provides metrics to evaluate the effectiveness of immigrant farming programs with respect to economic, physical, and social benefits accrued by participants. These metrics include supplemental income, increased physical activity, and increased acculturation into the surrounding community. The study also identifies the programmatic characteristics that contribute to these benefits. These characteristics include the type of technical training and farming resources that most benefit participants of the program. This study provides specific

information that can be used by community development practitioners to increase the community and economic development outcomes of immigrant farming programs. This information includes the types of farming programs which will lead to community and economic development goals.

DEFINITIONS OF KEY TERMS

In order to provide transparency concerning the use of terminology within this study, a list of definitions is provided of key concepts and terms used throughout this report. The term beginning farmer refers to individuals who have “operated a farm or ranch for 10 years or less” (Ahearn & Newton, 2009, p.iii). Beginning farmer programs are educational programs that target farmers who have operated farms or ranches for 10 years or less. An immigrant is defined as an “alien admitted to the United States as a lawful permanent resident” (U.S. Department of Homeland Security, n.d., p. 1). Immigrant farming programs are beginning farmer programs that target immigrant participants.

With respect to the constructs investigated in this study, social capital is defined as the “investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions” (Lin, 1999, p. 39). The social relations between individuals are defined as social ties (Mitchell & Trickett, 1980). Social networks include the total set of social ties “among all of the members of a particular population (e.g., the social network characteristics of a village community, or of a bounded work group)” (Mitchell & Trickett, 1980, p. 28).

The relationships within social networks involve a number of characteristics, including embedded resources, agency, norms, trust, reciprocity, and well-being outcomes. Embedded resources are the individual assets held by members of social networks such as “wealth, power,

and status” (Lin, 1999, p. 36). Agency is the capacity of individuals to act which can be enabled or restricted by the social structures in which the actions take place (Giddens, 1979). Norms are the “specification of desirable behavior together with sanction rules in a community” (Kandori, 1992, p. 63). Trust is the “willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (Mayer, Davis, & Schoorman, 1995, p. 712). Reciprocity is an action of an individual who has received a resource from another individual to provide that resource to someone in the future (Coleman, 1988). Well-being outcomes are outcomes that are linked to individuals’ overall life satisfaction, and satisfaction with critical domains such as work and family life (Diener, 2000).

LIMITATIONS OF THE STUDY

The limitations of this study involve the population used in the quantitative research strand, the participants involved in the qualitative research strand, and the cultural interpretation by the researcher of the findings. This study is limited by the individuals included in the survey population. The survey was completed by 46.1% of survey recipients which means that the findings from the survey represent the perceptions, experiences, and attitudes of the agricultural educators who completed the survey. These findings cannot be applied to the agricultural educators who did not complete the survey. Similarly, the results from the case study of two immigrant programs reflect the attitudes, experiences, and perceptions of the agricultural educators, immigrant farmers, and community partners who participated in the interviews and focus groups. The findings from the case study do not reflect the individuals who did not participate in the interviews and focus groups.

The study is also limited by the cultural interpretation of the translators and the researcher. The researcher incorporated a translator into interviews and focus groups with participants who did not speak English. Therefore, the experiences, attitudes, and perceptions of the individuals involved in these interviews and focus groups were mediated through the translators. The translators provided a level of interpretation during the translation process. In addition, the researcher is an American native and many of the participants in the interviews and focus groups are immigrants. The researcher also interpreted the attitudes, experiences, and perceptions of immigrant participants through her cultural lens.

Chapter 2

Literature Review

This study is interdisciplinary and involves diverse areas of study such as immigration, agriculture, non-formal agricultural education, and community development. To better understand the context of this study, background information will be provided on 1) African immigrants in the United States, 2) historical periods of transition within American agriculture, and 3) historical trends in agricultural education. Information will also be provided on agricultural education that targets immigrant populations.

AFRICAN IMMIGRANTS IN THE UNITED STATES

Although African immigrants make up only 9.7 percent of the total number of immigrants living in the United States, they represent one of the fastest growing immigrant groups in the nation (U.S. Department of Homeland Security, 2011). Between 2000 and 2010, the number of African immigrants living in the U.S. increased by 86.8 percent, which represented the highest rate of growth among all immigrant groups (Table 1). Approximately one and half million African immigrants live in the U.S., with an average of 50,000 African immigrants coming to the U.S. each year (Roberts, 2005; Terrazas, 2009).

Historical drivers of African immigration to the U.S.

Three centuries of political and economic instability across the African continent has encouraged a steady flow of African-born immigrants to enter the U.S. (Arthur, 2000). Citizens of many African countries face challenges such as “inadequate food production, destruction of

the ecosystem caused by deforestation, civil strife, coups and countercoups, dictatorships, and political corruption.” (Arthur, 2000, p. 6). In the past 20 years civil wars have erupted in Sierra Leone, Liberia, Sudan, the Ivory Coast, and Somalia (Frazier, 2005). Between 2001 and 2010, African countries experienced 10 major armed conflicts involving governmental power which ranked Africa as the region in the world with the highest number of armed conflicts (Stockholm International Peace Research Institute, 2011). These wars have resulted in the displacement of nine million African citizens (Shah, 2010).

Table 1

Immigrants in the United States by Country of Origin between 2001 and 2010

Country of Origin	# of Immigrants in 2001	# of Immigrants in 2010	Percent change
Africa	53,731	101,355	+ 88.6%
Asia	357,160	422,063	+ 18.2%
Europe	165,507	88,743	- 46.3%
North America	405,638	336,602	+ 17.0%
Oceania	6,071	5,345	- 12.0%
South America	68,484	87,187	+27.3%
Unknown	2,311	1,330	- 42.4%

Note. Adapted from the “2010 Yearbook of Immigration Statistics,” by the U.S. Department of Homeland Security, Office of Immigration Statistics, 2011.

In addition to military conflicts, citizens of African countries face economic challenges. Economic development within African countries has been stymied for decades due to widespread corruption. “Corruption involves the whole population and operates according to vertical relations of inequality. It is deleterious to the macro-development of Africa and makes rational economic activity impossible.” (Arthur, 2000, p. 6). African countries have also been destabilized economically through a number of international events including the devaluation of the franc in the 1990s, and programs instituted by the International Monetary Fund which led to widespread unemployment across Africa (Frazier, 2005; Eissa, 2005).

While numerous economic and political drivers exist to encourage Africans to leave their homes, their draw to the U.S. has been a result of decades of favorable immigration policies (Arthur, 2000; Reed, Andrzejewski, & Strumbos, 2010). The primary immigration policies that have facilitated African-born immigration to the United States are the Hart-Cellar Immigration Act of 1965, Refugee Act of 1980, Immigration Reform and Control Act of 1986, and Immigration Act of 1990 (Arthur, 2000). A discussion will be offered of these immigration policies and the ways these Acts have encouraged African immigration to the U.S.

The first Africans were brought to the U.S. as slaves through forced migration in the 18th century (Eissa, 2005). From 1700 to 1807 approximately 450,000 Africans entered the United States (Eissa, 2005). Voluntary immigration from Africa started in the 1860s but few African immigrants chose to come to the U.S., and African immigration rates remained low for nearly a century (Frazier, 2005). The Hart-Cellar Immigration Act of 1965, otherwise known as the Immigration and Nationality Act of 1965, led to the first increase in the rate of African immigration since the 1860s (Eissa, 2005). The Act amended the criteria used to determine the eligibility of incoming immigrants (Eissa, 2005). The Act provided preference to immigrants that had proficiency in certain professional skills and ties to family members living in the U.S. (Eissa, 2005). After the passage of the Act, African immigration to the U.S. greatly increased. The number of African immigrants coming to the U.S. in the 1950s was 13,016 (U.S. Department of Homeland Security, 2011). After the adoption of the Act in the 1970s, that number increased by 449 percent to 71,408 (U.S. Department of Homeland Security, 2011).

Through the 1980s, U.S. immigration policies continued to promote African immigration to America. The Refugee Act of 1980 “raised regional refugee ceilings” allowing more refugees to enter the U.S. (Eissa, 2005, p. 2). The Refugee Act of 1980 also allowed new

immigrants and refugees to become permanent residents after one year of living in the United States (Eissa, 2005). In addition, the Immigration Reform and Control Act of 1986 provided legal permanent resident status for 31,000 African immigrants who had been living in the U.S. since 1982 (Eissa, 2005).

Positive immigration policies continued into the 1990s with the Immigration Act of 1990 (Eissa, 2005). The 1990 Act raised the immigration ceiling by 40 percent to 675,000 which more than tripled the number of work visas that were available and increased the family-sponsored visas to almost 500,000 (Rumbaut, 1994). The 1990 Act offered legal immigrant status for three main reasons: “for family reunification, to supply needed labor for U.S. employers, and for humanitarian concerns” (U.S. Citizenship and Immigration Services, 2002, p. 10).

Two key components of the 1990 Act which affected African immigrants were the Diversity Visa Lottery and the Temporary Protected Status program (Eissa, 2005; Takougang, 2003). The Diversity Visa Lottery offered permanent resident visas to immigrants with high school diplomas from countries that were underrepresented in the U.S. (Eissa, 2005). “This lottery became the primary method by which Africans immigrated” to the United States (Eissa, 2005, p. 3). The Immigration Act of 1990 also established the Temporary Protected Status program which provided temporary resident status for individuals from countries affected by natural disaster or armed conflict (Eissa, 2005). This program has provided temporary status to a wide range of African immigrants from Liberia, Sierra Leone, Sudan, Burundi, and Somalia (Eissa, 2005). Overall, the 1990 Act dramatically increased African immigration to the U.S. The number of African immigrants entering the U.S. in the 1980s was 141,990 (U.S.

Department of Homeland Security, 2011). The number of immigrants increased 144 percent in the 1990s to 346,416 (U.S. Department of Homeland Security, 2011).

African immigrants in the United States in the 21st century

In the past decade, more than 850,000 African immigrants have relocated to the United States (U.S. Department of Homeland Security, 2011). According to the 2010 American Community Survey conducted by the U.S. Census Bureau, the majority of African immigrants currently living in the U.S. originate from Western Africa (38%), Eastern Africa (30%), and Northern Africa (17%). The majority of African immigrants (42%) coming to the U.S. in 2010 were granted legal residency because they had family members who were currently living in the U.S. as citizens (U.S. Department of Homeland Security, 2011). Figure 1 details the classification of African immigrants coming to the U.S. in 2010. African immigrants in the U.S. tend to reside in a handful of tightly-knit communities located in urban centers (Reed, Andrzejewski, & Strumbos, 2010). Roughly 34 percent of African immigrants in the U.S. live in four major metropolitan areas, namely New York City, Atlanta, Minneapolis-St. Paul, and Washington, D.C. (Terrazas, 2009; Venters & Gany, 2011). The largest concentration of African immigrants is in the Northeast region of the U.S. (Reed, Andrzejewski, & Strumbos, 2010).

African immigrants coming to the U.S. in the 21st century face a number of challenges such as poverty, underemployment, and illness. About 19 percent of African immigrants in the U.S. live at or below the poverty line, compared to 16 percent of other foreign-born populations and 13 percent of the native-born population (Reed, Andrzejewski, & Strumbos, 2010; U.S.

Census Bureau, 2010). Approximately 49 percent of African immigrant families with a single mother and children under five live at or below the poverty line (U.S. Census Bureau, 2010).

Many African immigrants are employed in low-paying, unskilled jobs (Reed, Andrzejewski, & Strumbos, 2010). African immigrants are more likely to work in unskilled service occupations compared to other foreign-born populations (Reed, Andrzejewski, & Strumbos, 2010; Terrazas, 2009). “In the case of African immigrants, entry to labor markets, earnings, and mobility has been influenced largely by education, language proficiency, and entrepreneurial initiative.” (Arthur, 2000, p. 3). African immigrants that come to the U.S. with limited education may “find themselves restricted to menial and low-paying jobs where they are subjected to exploitation” (Arthur, 2000, p. 3).

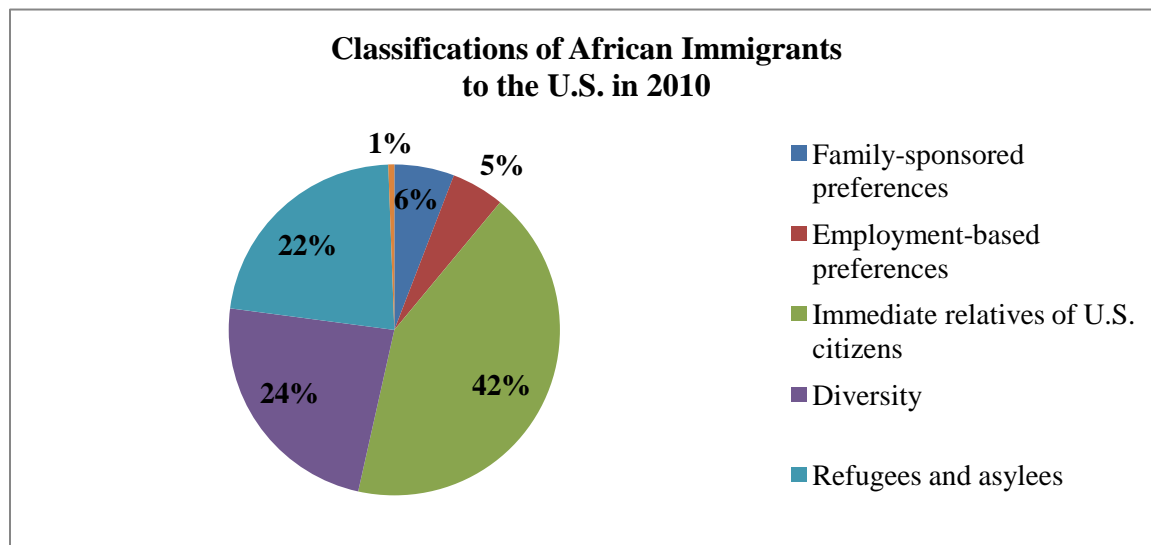


Figure 1. Classification of African Immigrants Coming to the United States in 2010. Adapted from the “2010 Yearbook of Immigration Statistics” by the U.S. Department of Homeland Security, Office of Immigration Statistics, 2011.

Many African immigrants also experience high rates of illness and poor nutrition (Biro, 2011; Patil, McGown, Nahayo, & Hadley, 2010; Reed, Andrzejewski, & Strumbos, 2010). Some African immigrants have pre-existing medical conditions that have developed through

years of living in harsh environments with constant political oppression, famine, and torture (Orieny, 2008). Immigrants also tend to have higher rates of infectious diseases compared to U.S. natives. “Tuberculosis rates (are) estimated to be four times higher among these (African) immigrants, and rates of hepatitis B virus, HIV, and parasitic infection also (are) significantly higher” (Orieny, 2008, p. 103). Children of immigrants also often have development delays in the forms of “general functioning delays, speech delays, gross motor delays, and disability from birth” (Orieny, 2008, p. 105).

In addition, many African immigrants experience high levels of mental illness in the form of depression, anxiety, and stress (Orieny, 2008; Venters & Gany, 2011). New immigrants often struggle trying to integrate into unfamiliar social, work, and educational venues which can lead to emotional strain (Venters & Gany, 2011). Struggles to assimilate into a new culture can be especially acute for men who often experience a loss of social status and identity in their host countries (Venters & Gany, 2011). African refugees tend to have heightened levels of anxiety which originate from the dangerous travels they experienced trying to flee from their homelands (Venters & Gany, 2011). “The unique stressors of such a journey have been associated with atypical presentation of depressive symptoms and dissociative or somatoform symptoms that escalate during a dangerous voyage and continue to worsen as an immigrant encounters new difficulties upon arrival” (Venters & Gany, 2011, p. 338).

Efforts to address the needs of African immigrants in the U.S.

Across the United States, a number of organizations work with African immigrants to help them integrate successfully into American society (Arthur, 2000; U.S. Department of Health and Human Services, 2002). A national network, involving regional and local organizations,

partners with the U.S. Department of Health and Human Services to provide assistance to new immigrants entering the country (U.S. Department of Health and Human Services, 2002). The network is made up of 11 private organizations, known as national voluntary agencies, which work with hundreds of local resettlement organizations across the country to deliver services to new immigrants (Gilbert, Hein, & Losby, 2010).

Local resettlement organizations utilize a variety of approaches to address the economic, physical, and social needs of new immigrants. The U.S. Office of Refugee Resettlement conducted a study to determine common approaches used by resettlement organizations to facilitate immigrant integration (Gilbert, Hein, & Losby, 2010). The study identified seven strategies that were used, including 1) mentoring programs to create social connections, 2) English as a second language courses to facilitate English proficiency, 3) Citizenship Test preparatory courses to enhance civic engagement, 4) free or reduced-cost health services to increase access to basic services, 5) interaction with police officers to improve immigrants' safety and understanding of U.S. laws, 6) job training and internship opportunities to increase levels of employment, and 7) funding from private foundations for immigrant initiatives to meet specific needs within local communities (Gilbert, Hein, & Losby, 2010).

African-led mutual aid associations also provide services to new immigrants. Mutual aid associations are organizations that are formed by individuals to “represent their ethnic, clan, religious, village, alumni, and national affiliations” (Arthur, 2000, p. 70). These associations provide “economic, psychological, cultural, and political support” (p. 70). Across the U.S. there are more than 25 mutual aid associations which represent African clans and ethnicities (Portland State University, n.d). These associations provide a variety of social services such as legal representation, translation services, and workforce development (Association of Africans Living in Vermont, 2012; Portland State University,

n.d). The associations also “assist immigrants during periods of crisis such as illness or death and (with) payment of legal expenses” (Arthur, 2000, p. 71).

African mutual aid associations also provide new immigrants with social networks and ties which are “crucial for social, cultural, and economic survival” (Arthur, 2000, p. 71). These social networks help immigrants preserve their African culture while successfully integrating them into the host country (Association of Africans Living in Vermont, 2012; Somali Bantu Youth Association of Maine, n.d.). “The interpersonal bonds that the immigrants foster among themselves within these associations are crucial to how they define and express their cultural distinctiveness and identity as Africans.” (Arthur, 2000, p. 71).

Farming as a tool for community and economic development

One tool that has been utilized by national voluntary agencies, local resettlement organizations, and African mutual aid associations to facilitate the integration of African immigrants into American society is farming (Association of Africans Living in Vermont, 2012; Biro, 2011; Lutheran Social Services, 2011). Immigrants that become farmers in the U.S. can often generate supplemental income. Farming has provided immigrants with increases in annual income from \$5,000 to more than \$50,000 (Brown, 2011). Much of the success of immigrant farmers has been attributed to niche marketing of ethnic crops which are often expensive to purchase in supermarkets (Brown, 2011; Patil, McGowan, & Nahayo, 2010). When immigrant farmers make these specialty crops available through farmers markets and other local venues, they also provide immigrant communities in the surrounding area with additional sources of healthy, culturally-relevant food (Darcé, 2010).

In addition to economic returns, immigrants who transition into farming receive a number of physical, social, and emotional returns. Immigrants have increased levels of physical activity, and experience a calming effect which counteracts the stress involved in living in a foreign country (Brown, 2011; Darcé, 2010; Hightower, 2011; Macy, 2011). Many immigrant farmers also supplement their diet with healthy, fresh food they have grown themselves (Brown, 2011; Darcé, 2010).

In summary, African immigration in the United States has been rapidly increasing since the 1980s. This increase has been largely due to supportive immigration policies in the U.S., as well as the worsening political and economic climate in many African countries. When African immigrants arrive in the U.S. they tend to live in tightly knit, urban communities. These communities often have well developed social networks that provide support to new immigrants and help facilitate acculturation. In addition, organizations such as mutual aid associations and resettlement agencies provide assistance to new immigrants to facilitate integration into U.S. society. One avenue that has been effective in facilitating integration for African immigrants has been farming. Farming provides African immigrants with a range of economic, social, and physical benefits.

HISTORICAL TRANSITIONS IN AMERICAN AGRICULTURE

As we consider the challenges facing African immigrant communities and the benefits that may be accrued through farming, it is important to understand the American agricultural system in which they find themselves. Over the past 150 years, the American agricultural system has undergone dramatic changes. In America two paradigms of agriculture currently exist, conventional agriculture and civic agriculture (Allen, 2004; Lyson, 2004). Civic

agriculture focuses on locally-based food production, processing, and distribution (Lyson, 2004, p. 85). Civic agriculture “is oriented toward local markets that serve local consumers rather than national or international mass markets” (Lyson, 2004, p. 85). Farming within this framework is conducted on a smaller scale, with less investment in land and capital than conventional farming (Lyson, 2004). In addition, civic agriculture encourages alternative forms of production, including low input farming, organic farming, and SPIN farming or small plot intensive farming (Broadway, 2009). Civic agriculture emerged from the sustainable agricultural movement that was a reaction to the modes of production that were used in conventional agriculture involving large-scale commodity-based monoculture farming (Lyson, 2004).

The tenets of civic agriculture align well with the needs and skills of African immigrant farmers. Many African immigrant farmers have experience with low input farming and have limited start-up capital (Brown, 2011; Darcé, 2010; Macy, 2011). African immigrant farmers also may find it easier to sell at farmers markets and through community-supported agriculture programs that involve less initial capital investments compared to other markets (Lyson, 2004; McMichael, 2003).

To better understand how the dual forms of agriculture developed in the U.S. we will explore the historical events that have shaped the American agricultural system. Cochrane (1993) identified four major periods of transitions for American agriculture, namely 1) The Last Frontier, 2) Prosperity and Depression, 3) The Technological Revolution, and 4) U.S. Agriculture in a World Market. These four periods of transition will be discussed, as well as the economic and sociological impacts of these events on American farmers.

The last frontier (1860-1897)

The Last Frontier involves a period of expansion and settlement of the West by U.S. settlers and farmers from 1860 to 1897 (Cochrane, 1993). Much of the settlement occurred in California, the Great Plains, the Pacific Northwest, and the Midwest (Cochrane, 1993). The major historical events that shaped American agriculture during this period were the introduction of new U.S. land policies, the development of the railroad system, the creation of the Land-grant system, and the Civil War (Cochrane, 1993).

The primary U.S. land policies that began the development of the West were the 1841 Preemptive Act and the Homestead Act of 1862 which transferred public lands to private owners (Allen, 1991; Rassmussen, 1960). The Preemptive Act allowed settlers to gain access to public land for the price of \$1.25 per acre (Allen, 1991). The Homestead Act gave “160 acres of the (land in) the public domain to any person who was the head of a family or over 21 years of age and who was an American citizen” (Rassmussen, 1960, p. 112).

A number of land policies followed the Acts which also transferred ownership of public lands to settlers, including the Timber Culture Act and the Desert Land Act (Allen, 1991). Between 1862 and 1900, approximately 500 million acres of public land was granted or sold to private owners (Cochrane, 1993). The Homestead Act and those Acts that followed were driving forces in the expansion of agriculture into the Midwestern states from 1863 to 1900 (LeDuc, 1962). During this period of time the number of farmers doubled in the United States (Cochrane, 1993).

In addition to the rapid development of the West, American agriculture was also shaped by the development of the railroad system (Cochrane, 1993). During this time the railroad system underwent rapid development which was supported by the government through large

land grants and seed money in the amount of roughly \$90 million (Cochrane, 1993). From 1860 to 1890 the miles of railroad track in operation increased 444 percent from 30,626 miles to 166,703 miles (Kim, 1995). Technological advances also improved the efficiency of railroad transportation (Kim, 1995). Over time the size of railroad cars increased, the carrying capacity of the cars increased, and so too did the speed of railroad travel (Kim, 1995). The improvements in the railroad system allowed railroads to compete successfully with other forms of transport for heavy freight (Cochrane, 1993). For farmers, railroads allowed for efficient and convenient transport of agricultural products from Western America to Eastern and Southern America (Cochrane, 1993).

Another major event that occurred during this time was the development of the Land-grant system (Cochrane, 1993). The Land-grant system was established as a way to counteract the decline in agricultural productivity in the U.S. (Seals, 1998). American farmers were engaging in slash-and-burn practices which provided initial yields but quickly reduced the soil nutrients, leading to lower and lower yields (Seals, 1998). Between 1840 and 1850 agricultural yields for five Eastern states and four Southern states declined an average of 64 percent (Seals, 1998). Congressman Justin Smith Morrill stated to the Congress that “in all parts of our country important elements in the soil have been exhausted, and its fertility, in spite of all improvements is steadily sinking” (Seals, 1998, p. 11).

Morrill suggested investing in a national higher education system which focused on the agricultural sciences (Shepardson, 1929). He proposed a bill to grant land to each state for the creation of institutions that would focus on agricultural research and education (Rasmussen, 1960). President Lincoln passed the bill, known as the Morrill Act of 1862, which developed Land-grant institutions in all of the states currently in the Union (Rasmussen, 1960). The

Morrill Act of 1890 was eventually passed to expand Land-grant institutions to the Southern states which entered the Union after the Civil War. The Morrill Act of 1890 also created institutions to serve newly freed African Americans (Shepardson, 1929).

Another historical event which shaped American agriculture during this time was the Civil War (Rasmussen, 1965). During the Civil War, the demand for agricultural products greatly increased and as a result agricultural productivity increased to meet the new demand (Rasmussen, 1965). Mechanical innovations in the form of the steam thresher, reaper, and cornplanter were instrumental in helping farmers increase their productivity (Rasmussen, 1965). The use of machinery in farming became prolific across Midwestern America where labor was at a premium (Rasmussen, 1965).

After the Civil War, demand for agricultural products began to diminish (Cochrane 1993). The increased number of farms across the country and the use of machinery in farming led to an overproduction of crops which then flooded the domestic and international markets. This led to a sharp decrease in prices for agricultural products (Cochrane, 1993). While farm prices were in a decline, farmers were still faced with paying high rates for land mortgages and railroad transport of their agricultural goods (Cochrane, 1993). During this time, American farmers struggled to keep their farms and many of them were forced into bankruptcy (Cochrane, 1993).

Economic impacts: Comparative advantage. Over this period of time, regional specialization took hold across the country (Cochrane, 1993). Between the newly constructed railroad system and the use of machinery in farming, American farmers were able to produce agricultural goods in which they had the comparative advantage in their region (Cochrane, 1993). Farmers could focus on growing the crops that could be produced the most efficiently in

their regions, and transporting those crops cheaply and conveniently to other regions across the country (Cochrane, 1993). Regions in the U.S. became synonymous with certain crops. The Northeastern states became known for fruit and dairy production, the Upper Southern states were linked to tobacco and feed corn production, and the Deep Southern states focused on cotton production (Cochrane, 1993).

Sociological impacts: Embeddedness of agriculture within the community. During this time period, farming was transformed from an industry embedded in the local community to an industry that was independent of the community. As farmers settled in Western America they were “bound together by such ties as kinship, common nationality, building bees, the same education, social, or religious purposes” (Lyson, 2004, p. 9). Farmers were primarily subsistence farming and the majority of the products they grew were “bartered for goods and services in the local community” rather than sold at market (Lyson, 2004, p. 9). As regional specialization took hold, farmers moved away from subsistence farming and entered into commodity farming which in turn loosened the ties between agriculture and the local community (Lyson, 2004). When farming was embedded within the community, farmers tried to meet the demands of their local and regional communities (Lyson, 2004). When farmers turned to commodity farming, they instead tried to gain comparative advantage in a particular crop based on factors such as labor, land, capital, and management strategies (Lyson, 2004).

Prosperity and depression (1897 – 1933)

The period from 1897 to 1993, known as Prosperity and Depression, took American farmers on a roller coaster beginning with the Golden Age of America Agriculture and ending with the Great Depression (Cochrane, 1993). Historical events which shaped American

agriculture during this time were the Mechanical Revolution, the development of the Cooperative Extension Service, and World War II (Cochrane, 1993).

This transition period started with an unprecedented level of agricultural productivity and high agricultural prices which lasted from 1900 until 1914, a period known as the Golden Age of America Agriculture (Cochrane, 1993). A major driver of the high level of agricultural productivity was a continuation of mechanical innovations which began decades earlier. This time period was marked by such enormous advances in mechanical technologies that it became known as the Mechanical Revolution (Cochrane, 1993). The primary mechanical innovation was the gasoline tractor (Rasmussen, 1960). Tractors aided in the planting and harvesting of crops, and quickly became a hallmark of many farms (Cochrane, 1993). Tractors in operation in the U.S. increased from 4,000 tractors in 1911 to 246,000 tractors in 1920 (Cochrane, 1993).

Another event which greatly influenced American agriculture was the expansion of the Land-grant system through the development of the Cooperative Extension Service (Cochrane, 1993). The Smith-Lever Act of 1914 created the Cooperative Extension Service which was a national non-formal agricultural education system that worked in conjunction with the Land-grant institutions (Jones & Garforth, 1997). The goal of the Cooperative Extension Service was “to aid in diffusing among the people of the United States useful and practical information on subjects related to agriculture and home economics, and to encourage the application of the same” (Jones & Garforth, 1997, p. 7). The Cooperative Extension Service acted as a bridge linking farmers across the country to the agricultural research conducted at Land-grant institutions (Jones & Garth, 1997).

Another milestone during this time was World War I. During World War I the national demand for agricultural products increased in a fashion reminiscent of the Civil War

(Rasmussen, 1962). The end of World War I saw the price of agricultural products sharply decrease much as the price for agricultural products decreased after the Civil War (Rasmussen, 1962). The economic decline facing farmers was aggravated by the stock market crash in 1929 the subsequent Great Depression, and a drought which swept the country (Rasmussen, 1962).

Economic impacts: Addressing the financial needs of farmers. American farmers faced two primary economic challenges during this time, lack of credit and limited markets (Cochrane, 1993). The nature of farming led to seasonal peaks and valleys in production which were aggravated often by weather conditions such as droughts and floods (Cochrane, 1993). Farmers wanted the government to establish loan programs which would help farmers weather these fluctuations in productivity (Cochrane, 1993). In addition, farmers were often negatively affected by fluctuations in demand and prices in the marketplace (Cochrane, 1993). Farmers hoped by expanding and diversifying their markets they could better handle fluctuations in the market (Cochrane, 1993).

To address these issues, the U.S. government enacted the Farm Act of 1916 and the Agricultural Marketing Act of 1929. The Farm Act of 1916 provided farmers with short-term and intermediate-term loans (Cochrane, 1993). The Act created a network of federal banks and provided these banks with seed money to initiate loan programs for farmers (Cochrane, 1993). The Agricultural Marketing Act of 1929 was created to provide farmers with additional markets (Cochrane, 1993). The Act provided money to promote agricultural commodities, create processing facilities, and “expand the membership of cooperative marketing and purchasing associations” (Cochrane, 1993, p. 120). While the loan programs were effective in providing farmers with emergency funds, the marketing programs did little to stabilize the price of agricultural products and prices continued to fall (Cochrane, 1993).

Sociological impacts: Economic struggles for rural farmers. The Great Depression was especially difficult for individuals living in rural areas, in particular farmers (Buttel, Larson, & Gillespie, 1990). The government commissioned a number of studies to explore the characteristics of individuals living in poor rural areas and provide recommendations of how best to facilitate economic development in these areas (Buttel, Larson, & Gillespie, 1990). Researchers explored a number of factors influencing the economic development of farmers such as land tenure and approaches to risk (Buttel, Larson, & Gillespie, 1990).

These studies found that the characteristics of farmers who rented their land were very different from farmers who owned their land (Buttel, Larson, & Gillespie, 1990). Farm owners and farm renters differed in the types of churches they attended, the schools their children attended, and the homes in which they lived (Buttel, Larson, & Gillespie, 1990). Farmers who rented their land were often younger, had more children, had less education, were more likely to move, and were less connected to the community than farmers who owned their farms (Buttel, Larson, & Gillespie, 1990).

Studies also investigated different approaches farmers had toward risk (Buttel, Larson, & Gillespie, 1990). Researchers found that farmers fell into two main categories regarding their approach to risk, “reckless” and “conservative” (Buttel, Larson, & Gillespie, 1990, p. 5). Reckless farmers tended to be farmers who were profit driven, planted all their land in the crop that offered the highest profits, and went into debt to purchase additional land (Buttel, Larson, & Gillespie, 1990). Conservative farmers, on the other hand, were driven by a desire to be independent (Buttel, Larson, & Gillespie, 1990). They tended to be consistent in the crops they grew each year regardless of the fluctuations in agricultural product prices, and tended to maintain the size of their farms rather than trying to purchase additional land and increase their

farm size (Buttel, Larson, & Gillespie, 1990). These studies argued that American farmers were not a homogenous group sharing similar characteristics. Instead American farmers represented a heterogeneous group that contained a number of different demographic characteristics such as education level and income (Buttel, Larson, & Gillespie, 1990). During this time, researchers began to explore the differences among farmer operators and not only the similarities.

The technological revolution (1933 – 1970)

The Technological Revolution from 1933 to 1970 extended the technological advances in American agriculture which began with the Mechanical Revolution (Cochrane, 1993). Technological innovations occurred in the area of machinery, chemical inputs, and biotechnology (Lyson, 2004). The historical events which shaped American agriculture during this time were the Chemical Revolution, the Biotechnology Revolution, World War II, and the alternative agriculture movement (Beus & Dunlap, 1990; Cochrane, 1993).

Technological advances during this time were facilitated through a commitment to scientifically based agriculture which was facilitated through research conducted at Land-grant institutions and the U.S. Department of Agriculture (Dahlberg, 1986). Mechanical advances included internal combustion tractors which could be fueled by inexpensive fuel (Dahlberg, 1986). The infusion of machinery into farming decreased the need for human labor in the fields. From 1940 to 1950 farm labor decreased by 26 percent (Cochrane, 1993). As innovations in machinery continued throughout this period, the need for labor continued to decrease.

In addition, technological advances were taking place in the area of chemical inputs and biotechnology (Cochrane, 1993; Lyson, 2004). Researchers developed a variety of synthetic inputs which could be used to increase yields such as fertilizers, pesticides, and insecticides

(Lyson, 2004). Synthetic inputs took hold in farming and “between 1945 and 1980, the use of synthetic fertilizers increased by 71.5%” in the United States (Lyson, 2004, p. 20). The infusion of synthetic inputs in farming resulted in record-breaking agricultural yields, and as a result less farmland and farmers were needed to supply the nation with food (Lyson, 2004). Agricultural advances were further extended through the Biotechnology Revolution which began in the 1980s (Lyson, 2004). The Biotechnology Revolution focused on genetic engineering of plants and animals to increase yields (Lyson, 2004). During this time, employment on farms across the country sharply decreased while the sales of farm machinery, agricultural chemicals, feed, seed, and livestock dramatically increased (Lyson, 2004).

Another historical event which shaped American agriculture was World War II. During World War II demand for agricultural products dramatically increased in a similar fashion to what occurred during the Civil War and World War I (Cochrane, 1993). The price of agricultural products followed the demand and between 1940 and 1946 the price of agricultural products increased by 138 percent (Cochrane, 1993). Unlike during the Civil War and World War I, after World War II the demand for agricultural products remained strong and prices remained high (Cochrane, 1993). Farmers experienced financial windfalls and were able to take advantage of the innovations that were being developed at the Land-grant institutions and the U.S. Department of Agriculture (Cochrane, 1993).

During this time, a reaction to the Chemical Revolution began to emerge in the form of Rachel Carson’s (1962) *Silent Spring*. Carson argued that the chemical pesticides and herbicides that were becoming a mainstay in American agriculture had detrimental effects on people, animals, and plants who came in contact with them. Carson showed evidence that the use of pesticides and herbicides in farming were causing groundwater contamination, soil erosion, and

harmful chemical residues on food (Beus & Dunlap, 1990). Carson's *Silent Spring* sparked a national debate on the impact of synthetic pesticides and herbicides on the environment (Beus & Dunlap, 1990). Farmers were being challenged to find alternative growing techniques which involved fewer synthetic inputs and in turn less negative impacts on the environment (Beus & Dunlap, 1990).

The environmental concerns over the use of pesticides and herbicides in farming led to the alternative agriculture movement (Lyson, 2004). The alternative agriculture movement encouraged the adoption of more environmentally-conscious farming techniques such as organic practices, low-input farming, and permaculture (Beus & Dunlap, 1990). The alternative agriculture movement resulted in a host of new farming techniques which relied more on human labor and less on synthetic inputs and machinery (Lyson, 2004).

Economic impacts: Restructuring of farm operations. The mechanical, chemical, and biotechnology innovations, which greatly increased productivity and profitability for American farmers, also led to the restructuring of American farms (Cochrane, 1993). Successful farmers began to purchase farms from less successful farmers facing bankruptcy or diminishing profits (Cochrane, 1993). This consolidated American agriculture into the hands of fewer farmers (Lyson, 2004). These successful farmers were able to include more and more agricultural technologies into their farms which further increased their productivity levels (Cochrane, 1993). The farms which emerged were "highly commercialized and highly capitalized" (Cochrane, 1993, p. 137). As a result, the number of farms decreased but the size of farms increased (Cochrane, 1993).

During this time the government's approach to farming also changed. Through the Civil War and World War I farmers faced fluctuations in demand which led to a flooding of the

market with agricultural products and in turn a decrease in prices (Cochrane, 1993). After World War II, government policy was established to safeguard against the drop in demand which often occurred after times of war by creating surplus programs to artificially maintain the prices of agricultural products in the market (Cochrane, 1993). “The commodities that were in fact produced and were in physical surplus, and which would have pushed prices down below the announced level of price support if left on the market, were acquired by the government and removed from commercial channels of trade” (Cochrane, 1993, p. 139). After the first year of the surplus programs, government officials were concerned that if the programs were discontinued that the prices of agricultural products would again fall (Cochrane, 1993). In order to maintain the prices of agricultural products, the surplus programs continued year after year (Cochrane, 1993).

Sociological impacts: Conventional versus alternative agriculture. American agriculture splintered into two camps, conventional agriculture and alternative agriculture. Researchers argue that the difference between alternative agriculture and conventional agriculture is more fundamental than simply the types of production techniques that are being used (Beus & Dunlap, 1990). Ultimately the divide between alternative agriculture and conventional agriculture is a difference in paradigms (Beus & Dunlap, 1990). Alternative and conventional agriculture represent “entirely different views of what constitutes ‘good’ agriculture, encompassing divergent perceptions of the appropriate goals, techniques, and impacts of modern agriculture” (Beus & Dunlap, 1992, p. 364-365).

Some researchers argue that these two types of agriculture favor different types of farmers (Beus & Dunlap, 1990). These researchers explain that conventional farming favors large, corporately-owned farms that rely on machinery and synthetic inputs such as pesticides,

herbicides, and fertilizers (Lyson, 2004). In contrast, alternative agriculture favors small- to medium-sized farms that rely on high levels of labor rather than high levels of machinery and synthetic inputs (Lyson, 2004).

Researchers have also critiqued the Land-grant system which seems to perpetuate conventional agriculture by large agribusiness corporations (Beus & Dunlap, 1990). Researchers explain that the Land-grant system puts “its facilities, its manpower, its energies and its thoughts almost solely into efforts that have worked to the advantage and profit of large corporations involved in agriculture” (Hightower, 1972, p. 10). Researchers argue that the Land-grant system perpetuating this form of agriculture “contributes to the decline of rural communities, damages soil and water resources, and exposes humans and other species to unsafe levels of dangerous chemical agents” (Beus & Dunlap, 1992, p. 364).

U.S. agriculture in a world market (1970 – 2010)

The final period of transition shaping American agriculture is U.S. Agriculture in a World Market. Cochrane listed this period from 1970 to 1990 but many of the themes and issues incorporated into this time period are still relevant today. As a result, this period of transition has been extended to 2010. The historical trends that have shaped this period include the globalization of the economy, the growing level of U.S. agricultural exports, and U.S. trade policies such as the North American Free Trade Agreement.

During this time, the primary historical trend that formed American agriculture is the globalization of the economy (Cochrane, 1993). Globalization refers to “the widening, deepening, and speeding up of worldwide interconnectedness” (Held & McGrew, 2007, p. 1). Globalization involves a paradox. The globalized economy produces a homogeneity which

makes similar products and services available on a global scale (Usher, Bryant, & Johnston, 1997). Globalization produces a marketplace with globalized comparative advantage. Individuals have become “global market consumers” who buy products and services from producers around the world (Usher, Bryant, & Johnston, 1997, p. 3). At the same time, globalization introduces an “emphasis on the uniqueness and difference of place and the advantageous conditions specific places can offer for free-floating capital” (Usher, Bryant, & Johnston, 1997, p. 3). In this marketplace, value comes not only from comparative advantage but also uniqueness. As globalization has taken hold, local communities are called on to become more autonomous and carve out a unique identity (Usher, Bryant, & Johnston, 1997). Globalization is increasingly shaping the global economic system. “Globalization in this decade remains on almost all measures more intensive and extensive than a decade ago” (Held & McGrew, 1997, p. 9).

Researchers have identified four major characteristics of globalization, namely 1) connection, 2) cosmopolitanism, 3) communication, and 4) commodification (Merriam, Caffarella, & Baumgartner, 2007). Connection speaks to the increased flow of goods and services across regional and national borders (Merriam, Caffarella, & Baumgartner, 2007). Cosmopolitanism describes the increased number of power and influence centers which work with and around national governments (Merriam, Caffarella, & Baumgartner, 2007). Communication involves an increase in the development of networks to transfer ideas and values to broad groups of people (Merriam, Caffarella, & Baumgartner, 2007). Commodification involves “the expansion of world markets and the extension of market-like behavior across more states and social realms” (Merriam, Caffarella, & Baumgartner, 2007,

p. 12). One example of commodification is the process of a state-owned prison becoming privatized (Merriam, Caffarella, & Baumgartner, 2007).

While all four components of globalization have affected American agriculture to a certain extent, commodification has had the most dramatic affect on how farmers interact in the marketplace. Commodification in the area of agriculture has magnified the importance of comparative advantage and regional specialization. Commodification has resulted in American farmers having to compete with farmers worldwide, and carve out their comparative advantage on a global scale (McMichael, 2003). Researchers argue that the market may not be an equal playing field for all farmers because labor is an integral part of agricultural production, and the cost of labor can be vastly different in different countries (McMichael, 2003). For example, China has one-sixth the labor costs compared to labor costs in the United States which puts Chinese farmers at a comparative advantage to American farmers (McMichael, 2003).

Globalization has also resulted in a further consolidation of American farms into the hands of a small number of individuals. Farms in the U.S. are continuing to increase in size and decrease in number (Lyson, 2004). Many American farms are agribusiness corporations which are gaining more and more control over agricultural production in the country (McMichael, 2003). About 95 percent of American food “is manufactured and sold by corporations” (McMichael, 2003, p. 377). Family farms have been relegated to “marginal units incapable of fully employing or sustaining families” (McMichael, 2003, p. 177). Not only is agricultural production becoming more consolidated but so too are the other areas of the food supply chain including processing and distribution (McKibben, 2007).

During this time period, agricultural exports from the U.S. have steadily increased. Since the 1980s, an average of 30 percent of American agricultural products is exported each

year (McMichael, 2003). The United States has become the world's primary supplier of basic commodities such as wheat, soybeans, and feed grains (Cochrane, 1993). The high level of U.S. agricultural exports has made American farmers reliant on foreign economies and markets (Cochrane, 1993). "The agricultural sector of the United States economy is highly dependent upon the world economy and the individual (countries in) that world economy for its growth and well-being" (Cochrane, 1993, p. 274). American agriculture is affected by world politics, weather conditions, and the economies of other countries (Cochrane, 1993).

American trade policies have also facilitated the entry of American agriculture into the globalized economy (McMichael, 2003). Primary among these trade policies has been the North American Free Trade Agreement (NAFTA) in 1994 which created a trading block between Canada, the United States, and Mexico (Krueger, 1999). NAFTA encouraged free trade among the countries and removed protective tariffs which favored national producers over other producers (Krueger, 1999). Researchers argue that trade policies, such as NAFTA, that encourage free trade actually provide an advantage to some farmers over others (McMichael, 2003). "(Economic) theory tells us market competition leads to efficiency, while the reality is that farmers are neither equal nor equally served by global markets that privilege large-scale agribusiness" (McMichael, 2003, p. 377).

NAFTA and other trade policies that uphold the ideals of free trade may be sacrificing national security in the process (Ikerd, 2001). Researchers argue that when the concept of free trade is applied to agriculture on a global scale then there is little difference between food that is produced in the U.S. or in other countries (Ikerd, 2001). If it is cheaper to produce food in countries other than the U.S. then these policies are encouraging the production of food abroad

(Ikerd, 2001). In the end, the U.S. will find itself relying on other countries for food in the same way it relies on other countries for oil (Ikerd, 2001).

Economic impacts: The consolidation of the supply chain. Researchers explain that there is a “myth of the markets” which has become entrenched in the U.S. (Ikerd, 2001). This myth states that “the markets are capable of ensuring that the right things are done, and are done efficiently” (Ikerd, 2001, p. 4). Researchers argue that the marketplace is not fair but in fact favors large agribusiness corporations over family farm operators (McMichael, 2003). The consolidation of the supply chain has resulted in fewer individuals and corporations controlling greater portions of the supply chain such as food production, processing, and distribution (Hendrickson, Heffernan, Howard, & Heffernan, 2001). Researchers argue that consolidation is occurring vertically within the supply chain with fewer organizations controlling multiple sectors within the chain such as processing and distribution (Hendrickson et al., 2001). Researchers also explain that consolidation is occurring horizontally within the supply chain with a limited number of organizations controlling a single sector of the chain such as one organization controlling the majority of poultry processing within a region (Hendrickson et al., 2001).

Sociological impacts: Localism versus globalism. Just as sustainable agriculture and civic agriculture emerged as a reaction to conventional agriculture, so too has localism emerged as a reaction to globalization (Lyson, 2004; McMichael, 2003). “There is already a healthy movement for Community Supported Agriculture across the United States, implementing the desire for localization based potentially in new spaces like bioregions rather than nations per se” (McMichael, 2003, p. 384). Americans are becoming interested in food produced in their local region as opposed to food produced in other parts of the country or outside of the country

(McMichael, 2003). Locally produced agriculture can take a number of forms such as community and school gardens, farmers markets, community-supported agriculture, and U-pick operations (Lyson, 2004). These local agricultural enterprises “bridge the economic, social, cultural, and political dimensions of community life” (Lyson, 2004, p. 28). Localism has encouraged the industry of agriculture to once again become embedded within the community, with farmers becoming civically engaged in their local community (Lyson, 2004).

American agriculture over the past 150 years has undergone tremendous change. American agriculture has been shaped by settlement in the West, wars, technological innovations, and globalization. As the 21st century unfolds American agriculture has split into two paradigms, conventional agriculture and civic agriculture with differing discourses (Allen, 2004; Beus & Dunlap, 1990). Conventional agriculture touts the benefits of scientifically based agriculture with economies of scale, while alternative agriculture proclaims the benefits of agriculture which is tied to preventing environmental degradation and supporting family farms within the local community (Allen, 2004; Beus & Dunlap, 1990; Lyson, 2004). These models of agriculture contain widely different production practices, values, and attitudes toward farming and the role of farmers. For African immigrants entering into American agriculture, civic agriculture provides opportunities to farm with production techniques that are similar to their previous experiences, require less start-up capital, and encourage entry into local markets which involve less initial investment.

BEGINNING FARMER EDUCATION IN THE UNITED STATES

Just as the American agricultural system has undergone changes so too has agricultural education for new entry or beginning farmers. Agricultural education was birthed at a national

level through the development of the Land-grant system in 1862 and has evolved through the 21st century to serve a wider range of farmers than ever before. It is important to understand how agricultural education has changed over time and the implications of these changes for immigrant farming programs. A discussion will be offered of the origins of agricultural education in the U.S., agricultural education during the alternative agriculture movement, and the current state of American agricultural education.

Agricultural education in the U.S.

The first national form of agricultural education in the U.S. originated with the Morrill Act of 1862 which created the Land-grant system, a network of higher education institutions that became hubs of agricultural research and education (Shepardson, 1929). The goal of these institutions was to improve the economic well-being of farmers by helping them increase their agricultural yields (Shepardson, 1929). As previously mentioned, the Morrill Act was joined by the Smith-Lever Act of 1914 which further expanded the Land-grant system with the development of the Cooperative Extension Service. The Cooperative Extension Service provided formal and non-formal agricultural education to farmers who did not have access to higher education institutions (Shepardson, 1929). The Cooperative Extension Service provided new and existing farmers with training in their own county at a reduced cost or free of charge (Jones & Garforth, 1997).

Agricultural educators at Land-grant institutions developed programs that utilized the Technology Transfer Model (Trauger, Sachs, Barbercheck, Kiernan, Brasier, & Findeis, 2008). This model involved agricultural educators persuading farmers to adopt specific production practices and techniques (Trauger et al., 2008). The primary role of agricultural educators was to

present farmers with the most current innovations and technologies related to agriculture (Trauger et al., 2008). In this model, agricultural educators took the role of expert (Trauger et al., 2008).

During this time, agricultural educators incorporated formal and non-formal education teaching strategies. Educators provided formal adult education for farmers in the form of lecture courses, correspondence courses, and movable schools which offered courses lasting from a week to a month in different locations (Shepardson, 1929). Educators also provided non-formal adult education in the form of farmers' conferences, field demonstrations, and traveling field agent lectures (Shepardson, 1929).

When the Technological Revolution began in the 1930s, agricultural education became even more critical (Lyson, 2004). Agricultural educators needed to keep new and existing farmers abreast of the constant technological innovations that were occurring (Lyson, 2004). In order to meet this steady demand, agricultural educators began utilizing the Human Resource Development Model (Trauger et al., 2008). The Human Resource Development Model involves students taking an active role in their learning (Trauger et al., 2008). In this model "students are expected to make their own decisions about how to use the knowledge they acquire" (Trauger et al., 2008, p. 433).

When the alternative agriculture movement began to take hold in the 1980s, agricultural educators were introduced to a very different type of farming. Alternative agriculture techniques differed greatly from the current system of conventional agriculture (Beus & Dunlap, 1990). Conventional agriculture relied heavily on machinery and synthetic inputs (Beus & Dunlap, 1990). In contrast, alternative agricultural practices involved production on small pieces of farmland, limited energy use, and greater farm self-sufficiency (Beus & Dunlap, 1990).

Not only did the alternative agriculture movement encourage the use of new farming techniques, it also encouraged different types of people to enter into farming. These new styles of farming allowed individuals to farm with less start-up capital and investment in farmland and machinery compared to large-scale commodity farming (Ahearn & Newton, 2009). Historically, new entry farmers have been white, non-Hispanic males (Ahearn & Newton, 2009). Today, the fastest growing groups of beginning farmers are female and minority farmers (Ahearn & Newton, 2009). These farmers “operate farms of all sizes, on average they operate smaller farms, in size and gross dollars, compared to established farms” (Niewolny & Lillard, 2010, p. 69). Beginning farmers today are more broadly defined to include individuals from a wide range of ethnicities, who may or may not come from a farming background, and may be old or young (Ahearn & Newton, 2009).

As alternative agriculture shaped the agricultural system in the United States, agricultural education for farmers underwent major changes as well. In addition to Land-grant institutions providing beginning farmer training, non-profit organizations also began providing training (Niewolny & Lillard, 2010). Non-profit organizations have successfully provided programs targeted to women, immigrants, and minorities (Niewolny & Lillard, 2010). Many of the non-profit organizations that target immigrant farmers have a broad range of goals, including high agricultural yields, better integration of the participants into American society, and greater access for participants to culturally-relevant food (Biro, 2011; Brown, 2011; Lutheran Social Services, 2011; Ostrom, Cha, & Flores, 2010).

Researchers argue that agricultural educators need to use innovative teaching models if they want their programs to be successful with non-traditional farmers (Ruhf, 2001). Beginning farmer programs in this era have incorporated a wide range of adult learning strategies, including

the Technology Transfer Model, Human Resource Development Model, and the Participatory Learning Model (Trauger et al., 2008). The Participatory Model involves participants and educators working together to determine how learning will take place (Trauger et al., 2008). This approach has gained popularity with agricultural educators because of the current interest in teaching alternative sustainable farming methods, and the desire to provide equity among diverse groups during the teaching process (Trauger et al., 2008).

Agricultural education and immigrant populations

Research in agricultural education for immigrant populations in the U.S. tends to focus on the three main areas: 1) the educational needs of immigrant populations, 2) strategies for agricultural educators to successfully work with immigrant populations, and 3) evaluating the success of agricultural education programs for immigrant farmers. Much of the agricultural education research on immigrant populations centers on the specific educational needs of immigrant populations. Many studies have focused on the issues that arise with immigrant farm workers that do not have basic levels of English proficiency (Opatik & Novak, 2010; Ricard, Legrand, Wright Hirsch, Gabany-Guerrero, & Guerrero-Murillo, 2008). These studies found that safety risks are increased and low performance can result from the immigrant farm workers not being able to understand directions and safety instructions (Opatik & Novak, 2010; Ricard et al., 2008). Studies have also explored the holes in knowledge for immigrant farmers, including how to apply for a loan, small-scale agricultural production practices, and assessing risk and opportunity (Garcia-Pabon & Lucht, 2009).

Research has also focused on strategies for agricultural educators to better meet the needs of immigrant populations. These strategies include translating program materials into the native

languages of immigrant participants, including a translator in the program, scaffolding new knowledge onto the learners' existing knowledge, and incorporating real work scenarios into the curricula (Behnke, 2008; Ostrom, Cha, & Flores, 2010; Spitzer, Whitford, & Frick, 1994). Researchers also suggest that agricultural educators undergo cultural training to better work with immigrant populations in their communities (Garcia-Pabon & Lucht, 2009). Another strategy that researchers suggest is incorporating an individual into the program that can operate as a cultural bridge between the agricultural educators and the program participants (de Koff, Pitchay, & Joshua, 2012). In one agricultural program, agricultural educators partnered with an international student who acted as a mediator (de Koff, Pitchay, & Joshua, 2012). The student helped the agricultural educators understand the perspective of the farmers and the farmers to understand the perspective of the educators.

In addition, agricultural education research has also explored the issue of evaluation. Agricultural educators have found it difficult to conduct effective evaluations with immigrant populations who have a limited ability to read and write English (Lackman, Nieto, & Gliem, 1997). For this reason, research has shown that sometimes low literacy clients, such as immigrants, are not assessed concerning what they learned from programs they have attended (Lackman, Nieto, & Gliem, 1997). Researchers recommend that agricultural educators who want to carry out effective evaluations with immigrant participants 1) conduct oral evaluations, 2) simplify the evaluation process, and 3) include translators in the evaluation process (Tong, Tilsen, & Bartholomay, 2011).

In summary, agricultural education in the United States has undergone dramatic changes over the past century. Much of this change has been driven by the transitions that have occurred within the agricultural system. In addition, non-traditional farmers, such as women, minorities,

and immigrants, are entering into agriculture at a much higher rate. Agricultural educators are incorporating new teaching models to better serve these new audiences that involve participatory learning. Research within the area of agricultural education that targets immigrant populations has focused on the needs of the learners, teaching strategies for the educators, and ways this new style of learning can be evaluated.

A discussion has been offered of African immigrants in the U.S., the history of American agriculture, and agricultural education in the U.S. to provide an understanding of the context in which this study is taking place. Understanding the issues facing African immigrants in the U.S. provides a greater appreciation for the needs and challenges of this group. It also provides insight into the need for workforce training programs and alternative routes for employment for this population. Gaining a broader understanding of American agriculture provides insight into the opportunities involved in the emerging form of civic agriculture for new immigrant farmers. The overview of agricultural education in the U.S. provides a greater understanding of the challenges facing agricultural educators trying to meet the needs of immigrant farmers.

Chapter 3

Theoretical Framework

This study explores the development of social capital within immigrant farming programs. The theory of social capital provides the conceptual framework for this study. Social capital theory describes how social networks are created; relationships are built between individuals in the networks; and the benefits received through membership in the networks (Bourdieu, 1986; Coleman, 1988; Lin, 1999; Putnam, 2000; Flora & Flora, 2008). This study has been guided by the research of Bourdieu, Coleman, Putnam, Flora and Flora, and Lin. An overview will be provided of the major contributions of these researchers to social capital theory, key social capital constructs that are investigated in this study, limitations of social capital theory, and the conceptual model of social capital which guides this study.

SOCIAL CAPITAL THEORY

Communities are constructed through human interaction (Flora & Flora, 2003). Social networks are formed as individuals within communities interact with each other (Mitchell & Trickett, 1980). Social networks are the “total set of linkages among all of the members of a particular population (e.g., the social network characteristics of a village community, or of a bounded work group)” (Mitchell & Trickett, 1980, p. 28). The relationships that are developed between members in social networks are called social ties (Mitchell & Trickett, 1980). These ties can be categorized by their level of multidimensionality or the type of exchanges that occur between members, the strength of the ties, and the frequency of interaction that occurs (Granovetter, 1973; Mitchell & Trickett, 1980).

Social capital is a type of capital which is accrued through building relationships in social networks (Bourdieu, 1986). Developing relationships in social networks requires an investment of time and energy by the members, with the expectation that members will have access to the resources held by other members within the network (Green & Haines, 2012). Increasing social capital in communities reduces transaction costs which in turn promotes collective action (Adger, 2003; Newman & Dale, 2005). Transaction costs are the costs associated with maintaining or transferring property rights (Allen, 2000). Examples of transaction costs include the cost of negotiating a contract and the cost of trying to determine the market value for a product (Allen, 2000). Communities that develop social capital are able to work collectively to address public needs such as public health, natural resource management, and economic development (Bridger & Luloff, 1999; Flora & Flora, 1993; Flora & Flora, 2003).

Social capital can be developed in communities of place and communities of interest (Flora & Flora, 2003). Communities of place are social relationships that occur through interaction within a particular region or area, while communities of interest involve social relationships that occur through a “common sets of interests” (Green & Haines, 2012, p. 144). An example of a community of interest is a beginning farmer program in which community members come together to learn to farm. An example of a community of place is an African mutual aid association that tries to meet the needs of immigrants living within a particular region.

Some of the seminal work in the area of social capital theory has been conducted by Pierre Bourdieu, James Coleman, Robert Putnam, Cornelia Flora and Jan Flora, and Nan Lin. Bourdieu (1986) and Coleman (1988) explored social capital with regards to small groups such as families and ethnic enclaves. Putnam (2000) investigated social capital in terms of larger

groups such as cities and regions. Flora and Flora (2008) explored social capital within the framework of community capitals. Lin (1999) incorporated many of the ideas of the other researchers into a model that describes the process of social capital development. A discussion will be offered of the key contributions of Bourdieu, Coleman, Putman, Flora and Flora, and Lin to the theory of social capital.

Pierre Bourdieu: Defining social capital

Bourdieu (1986) explored three major types of capital: economic capital, cultural capital, and social capital. Economic capital is capital that can be immediately converted into money (Bourdieu, 1986). Cultural capital can take three forms, namely embodied state, objectified state, and institutionalized state (Bourdieu, 1986). Embodied state refers to labor involved in assimilating into the culture, objectified state involves cultural goods such as dictionaries, and institutionalized state involves gaining academic qualifications (Bourdieu, 1986). The third type of capital is social capital which involves a set of social obligations or connections (Bourdieu, 1986). Bourdieu (1986) offered the following definition for social capital:

Social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition – or in other words, to membership in a group – which provides each of its members with the backing of the collectivity-owned capital, a ‘credential’ which entitles them to credit, in the various senses of the word. (p. 248)

The level of social capital which individuals can develop is dependent on the size of their social networks, the volume of economic, cultural, and symbolic capital possessed by the members in

the social networks, and their ability to mobilize that capital (Bourdieu, 1986). Bourdieu explained that “access to social capital means people have connections to individuals who, because they possess greater amounts of economic and cultural capital, might help them with advice, further connections, loans, and so on.” (Wall, Ferrazzi, & Schryer, 1998, p. 307). Bourdieu argued that social capital is not owned by a particular person but instead is embedded within social relationships (DeFillippis, 2001).

Bourdieu (1986) explained that developing relationships requires a “consecration” or an establishing of a role by a social institution which is reproduced and supported through the exchange of words and gifts (p. 287). For example, a family establishes a man to be a son-in-law through a marriage ceremony, and that role is reinforced through words at family gatherings and the ring he wears to symbolize his marriage. Roles within social networks provide benefits such as recognition within the society, as well as limitations of actions to acceptable forms (Bourdieu, 1986).

Bourdieu believed that social capital enhanced the benefits accrued through cultural and economic capital. Bourdieu argued that “social capital is not reducible to economic or cultural capital, nor is it independent of them, (instead) acting as a multiplier for the other two forms” (Schuller, Baron & Field, 2000, p. 5). Bourdieu explained that some of the ways social capital could augment economic capital was through increased access to market outlets, business contacts, and the development of skills and knowledge which could be converted into economic capital (Portes, 1998).

Just as social capital can be used to enhance economic and cultural capital, so too can economic and cultural capital be used to obtain social capital. Bourdieu argued that rich individuals in the community could use their economic resources to create social capital (Flora &

Flora, 1993). Bourdieu found “that elite families and upwardly mobile middle-class families in France used family economic and cultural capital to gain strategic class-based ties (social capital) for their children” (Flora & Flora, 1993, p. 218).

James Coleman: Exploring the development of relationships in social networks

Coleman extended Bourdieu’s work in the area of social capital. Coleman (1988) defined social capital as a type of capital which involves social structure and “facilitates certain actions of actors – whether persons or corporate actors – within the structure” (p. S98). Similar to Bourdieu, Coleman argued that social capital is not owned by individuals but instead is a capital that is embedded within social networks. He explained that social capital is not a tangible form of capital such as physical capital but instead “comes about through changes in the relations among persons that facilitate action” (Coleman, 1988, p. S100).

Coleman (1988) explored the economic and non-economic benefits of social capital. He investigated social capital development within Jewish enclaves in Brooklyn. Coleman found that the wholesale diamond market in Brooklyn was dominated by Jewish social networks. The members of these social networks were tightly connected through shared ethnicity, religion, family ties, and high frequency of interaction. In the wholesale diamond market, trust and reciprocity in Jewish social networks resulted in lower transaction costs. Families provided services to each other free of charge thereby increasing the efficiency of their market transactions. The development of social capital in the Jewish communities led to economic benefits for the communities.

Coleman (1988) argued that social capital does not only provide economic benefits but can provide non-economic benefits as well. He investigated social capital development in two

communities, a political activist student organization in South Korea and a neighborhood community in Israel. In South Korea, social capital development within the student organization led to the feeling of solidarity among the members and eventually to political action (Coleman, 1988). In Israel, social capital development in the local community resulted in feelings of safety and security for families in the area. Coleman also discovered that social capital development can lead to access to new information channels.

Coleman described a number of social network characteristics which contribute to social capital development such as trust, reciprocity, obligation, and expectation (Coleman, 1988). He found these characteristics to be tightly interwoven. When one individual within a social network provides resources to another member there is an expectation that the action will be reciprocated in the future (Coleman, 1988). The individual who received the resource also has an obligation to repay those resources in some form (Coleman, 1988). For feelings of expectation and obligation to be justified, the social network must have a certain level of trustworthiness (Coleman, 1988). Individuals need to have trust in the members of the social network that obligations will be repaid and that reciprocity will occur.

In addition to trust and reciprocity, social networks also include norms and sanctions that conform and restrict the actions of the members (Coleman, 1988). Coleman argued that social capital involves “a set of norms and effective sanctions that constrain and/or encourage certain kinds of behaviors” (Wall, Ferrazzi, & Schryer, 1998, p. 308). Coleman (1988) explained that the development of social capital in social networks requires that members give up some of their autonomy for the benefit of the network as a whole. Tied to norms are sanctions which ensure that there are negative repercussions for members who act in their own benefit at the expense of the larger group (Coleman, 1988). Even though norms and sanctions may seem negative,

Coleman saw these limits to freedom as a positive. He argued that norms and sanctions lead to public goods such as decreased crime in neighborhoods and increased school achievement.

Robert Putnam: The benefits of social capital in communities

Putnam (1993) explored social capital as it relates to large groups of citizens within regions and nations. Putnam explained that social capital was a resource which could be possessed by an individual or a community (DeFillippis, 2001). Putnam's work focused on characteristics within communities that affected their level of social capital attainment (Putnam, 1993; Putnam, 2000).

In Putnam's (2000) *Bowling Alone* he explored social capital in communities across the United States. Putnam described social capital as a major contributor to quality of life, providing individuals with benefits ranging from safety to health to scholastic achievement (Navarro, 2002). Putnam conducted a study of American's level of engagement in civic activities. Putnam was particularly interested in Americans involvement in voluntary organizations such as unions. Voluntary organizations "bring together people in a neighborhood or locality and create social bonds and relationships that can be leveraged for other social activities" (Green, 2011, p. 77). He found that Americans today are involved in fewer voluntary organizations, have less connection to their neighborhoods, and socialize with friends and family at a lower rate than previous generations (Putnam, 2000). Putnam concluded that civic engagement in the U.S. was in decline and therefore social capital was in decline (Putnam, 2000). For Putnam, civic engagement was synonymous with social capital (Putnam, 2000). The work of Putnam has gained so much popularity that today many social science researchers use civic engagement activities, such as

volunteering and group membership, as proxies for social capital (Costa & Kahn, 2003; Putnam, 1993).

Putnam also investigated communities in Northern Italy (Putnam, 1993). In 1970, the Italian government instituted 20 regional governments across the country (Putnam, 1993). Putnam explored the effects of the regional governments on the diverse communities in which they were placed (Putnam, 1993). Putnam found that communities that had high levels of social capital were more economically sound than those communities with lower levels of social capital. Putnam posited that communities with high levels of social capital were more likely to engage in economic development activities (Putnam, 1993).

Putnam (2000) describes two types of social capital which can be generated: bonding social capital and bridging social capital. Bonding social capital is developed through interaction between individuals who are peers within the community. The relationships that create bonding social capital involve high frequency of interaction, and result in feelings of solidarity. Bridging social capital is developed through relationships with people who have different backgrounds and represent different organizations outside of the community. These relationships often have less interaction than relationships that build bonding social capital. The benefit of bridging social capital is that it can provide access to resources that were not previously available. Relationships that generate bridging social capital can provide individuals with access to new customers, markets, and information channels.

Cornelia Flora and Jan Flora: Social capital within the community capitals framework

Flora and Flora (2008) describe social capital as a component of community capitals. Community capitals are resources that exist within communities which can be invested to create

new resources. The seven capitals found in communities are built capital, financial capital, political capital, human capital, cultural capital, natural capital, and social capital. Within the community capitals framework the different forms of capital can overlap, and some forms of capitals may be emphasized over other forms of capital.

When a community has high levels of bonding and bridging social capital then an entrepreneurial social infrastructure (ESI) is created (Flora & Flora, 1993). ESI is a state within a community that encourages entrepreneurial activity. Community characteristics that encourage ESI are legitimization of alternatives (i.e., providing a space for conflicting ideas and values), inclusive and diverse networks (i.e., networks that encourage bridging and bonding social capital), and resource mobilization. In order for resource mobilization to occur, members within the community need to have high levels of agency, or the ability to make choices and take action.

Nan Lin: Building a model of social capital theory

Lin's work integrated much of the work of Bourdieu, Coleman, and Putnam. He created a model showing how social capital could be constructed within social networks (Lin, 1999). Lin (1999) defined social capital as the "investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions" (p. 39). Lin's (1999) model focused on three main processes involved in social capital development: "1) investment in social capital, 2) access to and mobilization of social capital, and 3) returns of social capital" (p. 39). Lin included many of the same concepts in his model which were previously explored, including trust, norms, reciprocity, resources, and social network characteristics. In addition, Lin included mediating factors which inhibit or facilitate individuals' ability to access and utilize resources within social networks (Lin, 1999).

An overview will be provided of the three main processes described in Lin's model of social capital with particular attention paid to factors mediating individuals' ability to access and mobilize resources.

Investment in social capital. Lin argued that investment in social capital can take on different forms depending on individuals' desired outcome. For individuals interested in maintaining their current position, investing in dense, closed networks that involve high levels of interaction and few connections to outside members is an effective tactic (Lin, 1999). "For the privileged class, it would be better to have a closed network so that the resources can be preserved and reproduced" (Lin, 1999, p. 34). If individuals are interested in gaining access to new resources then open networks or networks that involve individuals from different organizations may be more useful (Lin, 1999).

Access to and mobilization of social capital. Lin argued there may be inequality in the way resources are accessed and mobilized by individuals within social networks. He described these inequalities as structural and positional variations in the network. Structural variations involve characteristics inherent within the structure which lead to some individuals having better access to resources over others. One type of structural variation is the level of industrialization and technology within the network (Lin, 1999). For example, if a social group uses Facebook to relay information to its members then any members who are unfamiliar with Facebook would be at a disadvantage when it comes to accessing that information.

Positional variations involve characteristics inherent in the members which contribute to unequal utilization of resources in social networks (Lin, 1999). Positional variations include socioeconomic status, education, and political position (Lin, 1999). For example, if a member has a high level of socioeconomic status within a social network she may be able to utilize

resources such as high-priced workforce training easier than other members who have lower levels of socioeconomic status.

As previously mentioned, an example of a positional variation is gender. Researchers have found that gender can inhibit social capital development in the workplace (Brush, Carter, Greene, Hart, & Gatewood, 2002; Burt, 1998; Timberlake, 2005). A study of the role of social capital and gender in financial investment firms found that women in the firms were less likely to mobilize social capital for market ventures (Brush et al., 2002). Other studies found that men were able to activate the social capital they have developed through entrepreneurial social networks to gain early promotions at a greater rate than women (Burt, 1998; Timberlake, 2005). In the area of agriculture, researcher have found that gender may not be an obstacle to social capital development. A study of female farmers found that they were able to activate their social networks in order to create new markets (Trauger et al., 2010). Female farmers were able to utilize relationships developed in parent teacher associations to create new markets in the local school districts for their agricultural products (Trauger et al., 2010).

Lin's model (1999) also considers the level of capitalization of resources by the members. Capitalization of resources refers to the different levels to which members in a network choose to mobilize the network resources. Lin explained that even when members have access to the same level of embedded resources within the network and the same level of relationships with members in the network, they do not necessarily access resources at the same rate (Lin, 1999). Lin argued that personal will or someone's interest in capitalizing the resources is another factor that determines to what level an individual will be able to utilize resources in a social network. He explained that mobilization of resources is a decision that comes at an

individual level and therefore agency is a critical factor in the discussion of social capital (Lin, 1999).

Returns of social capital. According to Lin, the development of social capital provides individuals within social networks with two main categories of returns: returns that come from instrumental action and returns that come from expressive action (Lin, 1999). “Instrumental action is taken to obtain resources not possessed by the actor, whereas expressive action is taken to maintain resources already possessed by the actor” (Lin, 1999, p. 40). Instrumental actions lead to economic, political, and social returns (Lin, 1999). One study of civic engagement found that instrumental actions included participating in rallies, signing petitions, and marching for a cause (Son & Lin, 2008).

Expressive actions lead to increases to “physical health, mental health, and life satisfaction” (Lin, 1999, p. 40). The returns that are acquired through expressive actions are reminiscent of Putnam’s quality of life benefits such as health and safety. The returns acquired through instrumental and expressive actions tend to reinforce each other (Lin, 1999). For example, when life satisfaction is increased, individuals may gain confidence and as a result engage in more entrepreneurial activities. Studies have found that expressive actions included worshipping in church, participating in the arts, joining youth programs, and supporting friend through academic endeavors (Chen, Wang, & Song, 2012; Son & Lin, 2008).

Lin’s model offers an interesting intersection of the key components of social capital theory that have been developed through the work of Bourdieu, Coleman, and Putnam. His model offers not only a list of variables involved in creating social capital but also a model of how they interact together. Lin’s model describes social network structures, the building of relationships among the members, how those members utilize resources within the networks, and

ultimately the returns they receive through their membership.

SOCIAL CAPITAL DEVELOPMENT IN VIRTUAL COMMUNITIES

Current research in social capital theory has focused on social capital development through virtual interaction. These studies have focused on how social capital is developed through interaction on social network sites and virtual meetings. One study explored how interaction through an internal social network site of an organization generated social capital among the employees (Steinfield, DiMicco, Ellison, & Lampe, 2009). Researchers found that the relationships that occurred through interaction on these internal social network sites resulted in corporate citizenship and improved knowledge management (Steinfield, DiMicco, Ellison, & Lampe, 2009). Studies have also explored social capital development among teams that are connected digitally (Robert, Dennis, & Ahuja, 2008). Researchers found that one of the returns of generation of social capital through these digitally connected teams involved better knowledge integration. Recent studies have also focused on social capital development through social networking sites such as Facebook and MySpace (Steinfield, Ellison, & Lampe, 2008; Valenzuela, Park, & Kee, 2009). These studies have found that virtual interaction through social networking sites can result in social capital development much in the same way as live interaction.

LIMITATIONS OF SOCIAL CAPITAL THEORY

Critics have argued that social capital theory involves a number of limitations. The primary limitation of the theory is that social capital is too vague of a concept to be practical and useful (Bridger & Luloff, 2001; Portes, 2000; Schuller, Baron, & Field, 2000; Stoecker, 2004).

Critics explain that the broad nature of social capital has allowed this concept to be used in an array of disciplines which has over time has diluted its meaning (Portes, 2000). Researchers state that there needs to be more precision concerning the definition of social capital, the ways in which social capital is measured, and a clarification of the types of social capital which are being developed (Bridger & Luloff, 2001; Schuller, Baron & Field, 2000).

Social capital theory has also been critiqued because theorists often fail to address the negative effects that can occur through social capital development in communities (DeFillipis, 2001). Researchers explain that tight knit communities with high levels of social capital can be discriminatory to individuals outside of their community (DeFillipis, 2001). Researchers also argue that communities with high levels of social capital can restrict access to opportunities within their own community through the downward leveling of norms (Portes, 1998).

A final criticism leveled at social capital theory is that it is predicated on a notion of community as “a place where the physical boundaries are well defined, where the people share common institutions, and where there are few social cleavages.” (Bridger & Alter, 2006, p. 8). Researchers explain that this definition of community is not applicable to many of the types of community which currently exist. Individuals are mobile and rarely stay in one place for long periods of time. Therefore, the concept of social capital developed through frequency of interaction over time may not be representative of how community interaction takes place.

KEY CONCEPTS OF SOCIAL CAPITAL THEORY

A closer examination will now be taken of the social capital constructs investigated in this study. The conceptual model for this study will be explored, including the interaction between the programmatic characteristics, social capital factors, and resulting outcomes for

program participants. Operationalized definitions will also be offered for the social capital constructs, including embedded resources, social ties and networks, agency, trust and reciprocity, and well-being.

The conceptual model

Figure 2 provides a conceptual model of how specific programmatic characteristics contribute to the development of social capital within the program, and the resulting impact that these social capital factors have on the participants' well-being. The program characteristics of technical training and providing access to farming resources result in the embedded resources within the program. The program characteristics of access to information and requirements to use program resources result in agency for the participants in the program. The program characteristics of interaction with individuals outside of the program and individuals within the program result in social networks and ties within the program. The program characteristics of attendance, program norms, reciprocity among individuals in the program, and the participants' willingness to ask for guidance result in trust and reciprocity in the program. The social capital factors of embedded resources, social ties and networks, agency, and trust and reciprocity result in well-being outcomes for participants of the program. These well-being outcomes include economic, physical, and social benefits for program participants.

The model also includes constraints or barriers that can limit the extent to which the program characteristics can result in social capital factors. These constraints include factors within the program such as lack of program funding for agricultural educators or farming equipment. The constraints also involve factors which are specific to immigrant participants such

as lack of English proficiency, limited access to transportation, and work schedules that restrict program participation.

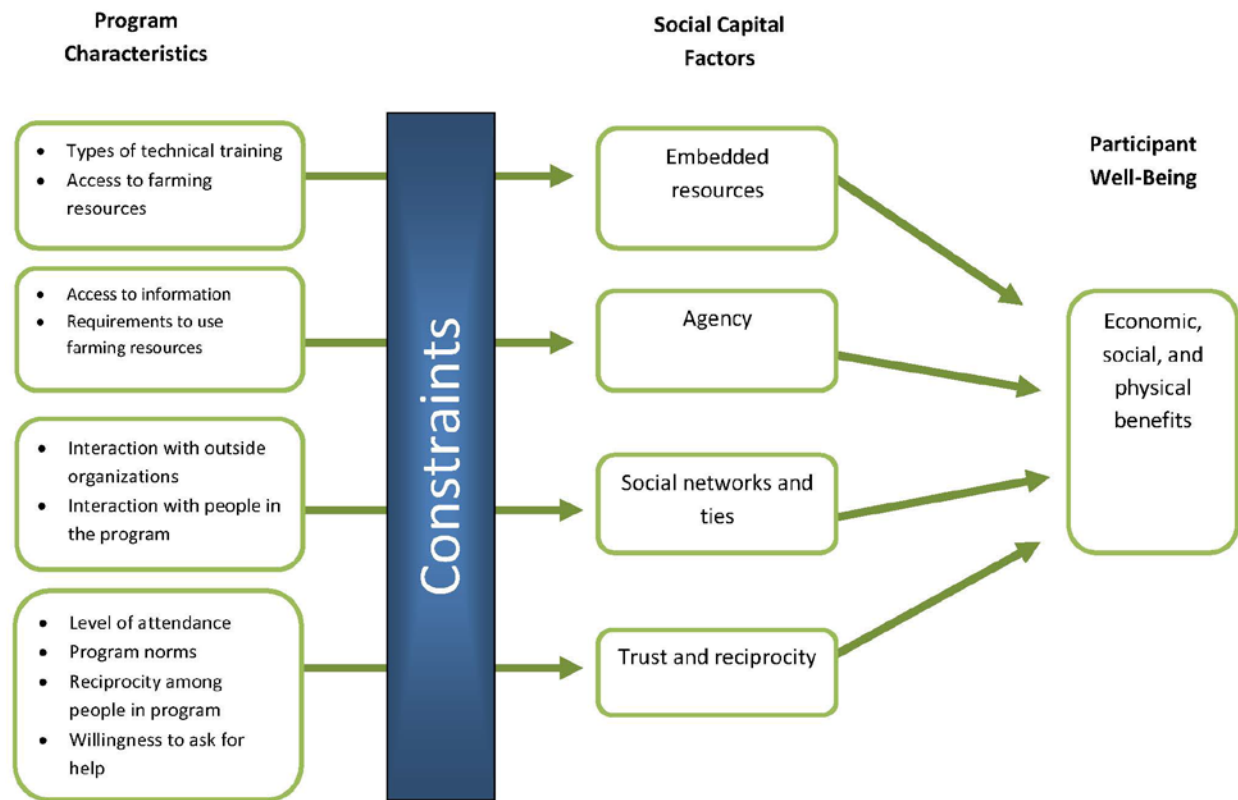


Figure 2. Conceptual Model of Program Characteristics that Contribute to Social Capital.

Factors outside of the conceptual model. In addition to the constraints that are included in the model, there are constraints that are not included in the model which can impact the level to which social capital is developed within immigrant farming programs and the impact on the well-being of program participants. These factors include prices of farm inputs, prices of farm equipment, and weather conditions that impact the growth of crops. Additionally, factors within the community may influence the process of social capital development within these programs and the resulting increases to well-being of the participants. These factors include the level of

interest within the community to purchasing locally-grown food, the established prices of crops in local markets, and the community's level of support for immigrants living in their area.

OPERATIONALIZED DEFINITIONS OF THE CONCEPTS

Concept 1: Well-being outcomes (Dependent variable)

Well-being involves overall life satisfaction, satisfaction with critical domains such as work and family life, high levels of positive affects, and low levels of negative affects (Diener, 2000). Well-being is influenced by a number of factors including “dispositional influences, adaption, goals, and coping strategies” (Diener, Suh, Lucas, & Smith, 1999, p. 276). Gallup-Healthways conducts an annual national survey which measures the well-being of Americans living in the U.S. (Gallup-Healthways, 2012). Data is collected from Americans across the country, and aggregated to provide well-being data at the regional, state, and city levels (Gallup-Healthways, 2012). This survey collects data on five major indicators of well-being: 1) life evaluation, 2) emotional health, 3) physical health, 4) healthy behaviors, 5) work environment, and 6) basic access.

Life evaluation measures the respondents' current life situation and their anticipated life situation (Gallup-Healthways, 2012). Emotional health measures the respondents' daily experiences with a range of emotions such as enjoyment, happiness, sadness, stress, anger, and depression. Physical health measures the respondents' experience with physical obstacles such as disease, obesity, colds, headaches, and overall energy level. Healthy behavior measures the level to which healthy and unhealthy behaviors occur. These behaviors include smoking, exercise, and consuming fruits and vegetables. Work environment measures the respondents' job satisfaction

and interaction with their supervisor. Basic access measures the level to which the respondents' have their basic needs met such as access to clean water, medicine, and money for food.

Within this study, well-being outcomes include economic, social, and physical outcomes accrued by participants through their involvement in immigrant farming programs. Economic well-being outcomes include increases to supplemental income and decreases to the cost of food which needs to be purchased. Social well-being outcomes include higher levels of acculturation and higher levels of social status. Physical well-being outcomes include increased levels of physical activity and increased access to healthy, culturally-relevant foods.

Concept 2: Embedded resources (Independent variable)

A number of different types of embedded resources can be found in social networks, including 1) economic resources such as access to protected markets or favorable rates on business loans, 2) cultural capital such as interaction with prominent members of the community, and 3) institutionalized cultural capital such as certification through a prominent government organization or higher education institution (Bourdieu, 1986; Siisänen, 2000). Information channels are another form of resources which are embedded within social networks (Coleman, 1988).

Researchers argue that social capital works as a multiplier to enhance the benefits of other types of capital. The benefits of economic, human, and cultural capital can be magnified through the development of social capital (Coleman, 1988; Schuller, Baron, & Field, 2000). For example, as individuals build relationships that involve trust and reciprocity with members in their social networks, they are more likely to engage in economic transactions with those members. As individuals invest in relationships within social networks they are also more likely

to learn of new opportunities through information channels such as workforce training which can result in increases to their economic capital.

In this study, embedded resources are focused on resources provided through the immigrant farming programs to immigrant participants. These resources included technical training such as workshops and classroom instruction on production techniques and business development. These resources also include access to farming, start-up resources such as farmland, farming equipment and tools, and utilities.

Concept 3: Social ties and networks (Independent variable)

Emery and Flora (2006) describe two types of relationships that occur within social networks and the social capital that is generated from each type of social tie. The first type of network relationship is the relationship that is developed among peers within the network, also known as horizontal networks (Emery & Flora, 2006). Horizontal networks involve close knit relationships among peers within the network. These ties tend to involve high frequency of interaction between the members and often increase community solidarity. These types of relationship result in strong ties and bonding social capital (Emery & Flora, 2006; Granovetter, 1973).

The second type of network relationship involves the development of horizontal networks (Emery & Flora, 2006). Vertical networks involve loose ties with individuals from different social networks (Flora & Flora, 1993). Granovetter (1973) refers to these kinds of relationships as weak ties. These relationships have much lower levels of frequency of interaction between the members compared to horizontal networks, and often include members with varying levels of influence. Vertical networks result in bridging social capital (Emery & Flora, 2006). Bridging

social capital offers members access to resources that would otherwise be unavailable such as new information channels (Coleman, 1988). Relationships that develop bridging social capital can provide members with information concerning jobs, loans, or markets (Coleman, 1988).

In this study, the development of horizontal and vertical networks is investigated. Horizontal networks involve relationships built between immigrant participants and members of the immigrant farming programs, including other participants, instructors, and program directors. Vertical networks involve relationships developed between immigrant participants and individuals outside of the program such as farmers market managers and CSA managers.

Concept 4: Agency (Independent variable)

Human agency involves the capacity of individuals to engage in action which can be enabled or inhibited by social structure (Bourdieu, 1972; Giddens, 1979). Critical to having agency is having power to make a choice. “There can be no agency without power, access to critical information, diverse intellectual capital and in the long run, wisdom” (Newman & Dale, 2005, p. 482). Researchers argue that agency is necessary for social capital to be realized. “Social capital is a potential, agency activates it” (Newman & Dale, 2005, p. 482). Agency can take two forms, community agency and human agency. Community agency involves the ability of a group of people to take action. Community agency is “the capacity of people to manage, utilize, and enhance those resources available to them in addressing locality wide issues” (Brennan & Israel, 2008, p. 89).

Human agency focuses on agency at the individual level. Agency describes the capacity of individuals to act (Giddens, 1979). Bourdieu (1972) explored how agency is impacted by structures such as politics, class, and gender. Bourdieu argued that agency and structure are tied

together. Agency can be inhibited or enhanced through structures in which the individual is embedded. For example, individuals that embrace the ideals of the dominant political party in the country may find that they have a higher capacity to engage in deliberate action compared to individuals that embrace the ideas of a minority or marginalized political party. Critical to having agency is having the power to make a choice. “There can be no agency without power, access to critical information, diverse intellectual capital and in the long run, wisdom” (Newman & Dale, 2005, p. 482).

Additional obstacles to agency include 1) technological limitations, 2) restrictions on the options available within the social structure, and 3) more powerful actors within the social structure removing options for individuals (Newman & Dale, 2005). Developing bridging social capital can help mediate many of these impediments to agency (Emery & Flora, 2006). Bridging social capital tends to increase channels of information which in turn can increase the flow of innovation (Emery & Flora, 2006). Increased access to new information and innovation may provide novel approaches to overcome technical challenges. Bridging social capital, which develops through the cultivation of relationships outside of the community, can also result in access to resources that were previously unattainable (Emery & Flora, 2006). These new resources may help individuals overcome personal restrictions such as race or socioeconomic status. These resources and contacts may also help individuals overcome obstacles put in place by more powerful members within the community.

In this study, agency is considered at the individual level. Agency is investigated with respect to the agency of the immigrant participants. Agency is explored with respect to the flow of information through information channels, the ability of the participants to access that

information, and limitations to agency such as program requirements that restrict access to farming resources.

Concept 5: Trust and reciprocity (Independent variable)

Social capital is developed through an investment of time and energy in relationships and social networks with the expectation that these ties will result in access to resources (Green & Haines, 2012). Social capital involves the development of trust, reciprocity, norms, and sanctions among individuals in social networks (Bourdieu, 1986; Coleman, 1988). Relationships can be strengthened over time through increased frequency of interaction among the network members (Bourdieu, 1986). As the exchange of resources takes place among individuals in the network, a sense of obligation occurs. In the future, individuals will have the expectation that favors they have made to other members will be returned, that there will be reciprocity (Coleman, 1988).

Social networks which involve trust and reciprocity can provide both benefits and restrictions to network members. The benefits include lower transaction costs, solidarity, a sense of safety, and access to information channels (Coleman, 1988). The negative effects include discrimination against individuals outside of the community, group norms and sanctions which limit the autonomy of group members, and the downward leveling of norms which restricts the achievement of the members (Navarro, 2002; Portes, 1998).

In this study, trust and reciprocity with respect to immigrant participants in immigrant farming programs. Program characteristics are considered that enhance or restrict the levels of trust and reciprocity among immigrant participants. Trust and reciprocity is explored with respect to the participants' level of attendance in program activities, level of reciprocal actions

within the program, and the participants' willingness to ask for guidance from individuals within the program.

CONCLUSION

In closing, social capital theory provides a conceptual framework in which to view the phenomenon of social capital development in immigrant farming programs. Seminal work has been conducted in the development of social capital theory by Pierre Bourdieu, James Coleman, Robert Putnam, Cornelia and Jan Flora, and Nan Lin. In addition, the limitations of social capital theory were discussed. The key social capital constructs that were investigated in this study were discussed, including the conceptual model of this study and operationalized definitions for the constructs. The researcher further investigated the constructs which were identified through a review of social capital theory. The methodology utilized to measure these constructs will be further explored in the subsequent chapter.

Chapter 4

Methodology

Previous chapters have provided background on the phenomenon of interest within this study and the conceptual framework. The research design selected by the researcher to investigate this phenomenon will now be explored. An overview is provided of the researcher's epistemology and ontology, the problem statement, research questions, unit of analysis, and the research design. Operationalized definitions of the variables related to the study are also offered, including the methods that will be used to measure the variables.

PERSONAL EPISTEMOLOGY AND ONTOLOGY

The researcher in this study embraces a pragmatic paradigm concerning research methods and design. Pragmatists consider the primary focus of research to be the research question rather than the research methods that are used to answer that question (Tashakkori & Teddlie, 1998). The researcher in this study used the research question to drive the research design incorporated into the study, the research methods that were applied, and the type of analyses that were conducted.

The researcher is guided by a pragmatic ontology. The pragmatic ontology, or the nature of reality, is that reality is both singular and multiple (Creswell & Plano Clark, 2011). In other words, reality involves general truths which are universal, as well as multiple truths which are embedded within the context of individuals' perspectives and experiences (Ary, Jacobs, Razavieh, & Sorenesen, 2006; Creswell & Plano Clark, 2011). To address the singular nature of reality, the research used deductive reasoning in the study. Deductive reasoning "moves from (1)

a pattern that might be logically or theoretically expected to (2) observations that test whether the expected pattern actually occurs” (Babbie, 2004, p. 25). To address the multiple nature of reality, the researcher used inductive reasoning in the study. Inductive reasoning “moves from the particular to the general, from a set of specific observations to the discovery of a pattern that represents some degree of order among the events” (Babbie, 2004, p. 25).

The researcher is also guided by a pragmatic epistemology. The pragmatic epistemology, or the way in which knowledge is created, is that knowledge creation should be practical (Creswell & Plano Clark, 2011). Researchers holding a pragmatic epistemology choose the research methods to collect data by determining “what works” to best to answer the research question (Creswell & Plano Clark, 2011, p. 42). The researcher in this study chose a research design which incorporated quantitative and qualitative research methods to address the research questions. Quantitative research methods are often used to create hypotheses about existing cause and effect relationships and to test hypotheses (Creswell & Plano Clark, 2011). The researcher used quantitative methods to determine how well current literature on social capital theory applies to the population in question. In contrast, qualitative research methods “explore a problem, honor the voices of participants, map the complexity of the situation, and convey multiple perspectives of participants” (Creswell & Plano Clark, 2011, p. 7). The researcher utilized qualitative research methods to better understand the participants’ lived experiences, attitudes, and perceptions concerning the phenomenon.

PROBLEM STATEMENT

African immigrants in the United States face a multitude of economic, social, and physical challenges (Manirakiza, 2010; Reed, Andrzejewski, & Strumbos, 2010; Terrazas, 2009;

U.S. Census Bureau, 2010). African immigrants have turned to farming as a way to overcome these challenges (Brown, 2011; Darcé, 2010; Hill, 2011; Lebens, 2011). Key to African immigrants becoming successful farmers in the U.S. is participation in immigrant farming programs (Biro, 2011; Brown, 2011; Macy, 2011; Ostrom, Cha, & Flores, 2010). Immigrant farming programs provide African farmers with educational training and farming resources, as well as connections to additional individuals who have access to additional forms of training and resources (Biro, 2011; Brown, 2011; Macy, 2011; Ostrom, Cha, & Flores, 2010). African immigrants who participate in immigrant farming programs become members of social networks which in turn facilitates the development of social capital within the programs (International Rescue Committee, 2012; Lewis, 2010; Macy, 2011). This study explores the development of social capital within immigrant farming programs.

RESEARCH QUESTIONS

The guiding question for this study is “How, if at all, is social capital developed in immigrant farming programs?” In order to explore this question, the following quantitative, qualitative, and mixed method research questions were investigated.

1. What programmatic characteristics contribute to the development of social capital among immigrant program participants? (*Quantitative*)
 - a. What types of *embedded resources* within the programs contribute to the development of social capital among immigrant program participants?
 - b. What characteristics within the programs contribute to the development of *social ties and networks* among immigrant program participants?
 - c. What characteristics within the programs contribute to the development of *agency* among immigrant program participants?

- d. What characteristics within the programs contribute to the development of *trust and reciprocity* among immigrant program participants?
2. How does social capital development within immigrant farming programs contribute to the well-being of immigrant program participants, if at all? (*Mixed method*)
 - a. How do *embedded resources* within the programs contribute to the well-being of the immigrant program participants, if at all?
 - b. How does the development of *social ties and networks* among immigrant program participants contribute to their well-being, if at all?
 - c. How does the development of *agency* among immigrant program participants contribute to their well-being, if at all?
 - d. How does the development of *trust and reciprocity* among immigrant program participants contribute to their well-being, if at all?
3. How does social capital development within immigrant farming programs that include African immigrant participants differ from immigrant farming programs with immigrant participants from other world regions, if at all? (*Quantitative*)
4. How does the gender of the participants affect social capital development within immigrant farming programs that include African immigrant participants? (*Qualitative*)

The research questions are based on *a priori* propositions. *A priori* propositions are propositions that are established before data is collected (Howell, 2010). The *a priori* propositions in this study are based on previous literature concerning social capital theory. The *a priori* propositions in this study are also based on previous studies which investigated community and economic development in immigrant communities. A list of *a priori* propositions is offered in Table 2.

Table 2

A Priori Propositions Guiding the Study

a Priori Proposition	Supporting Literature	Research Questions
Immigrant farming programs that make resources available to their participants, encourage diverse social networks, enhance participants' agency, and facilitate trust and reciprocity will create social capital among the participants.	<p>Social capital is created through the presence of embedded resources, diverse social ties and networks, agency, and trust and reciprocity (Coleman, 1988; Flora & Flora, 1993; Lin, 1999; Newman & Dale, 2005)</p> <p>Embedded resources are present in social networks that include cultural capital, human capital (enhanced through education training), and financial capital (Bourdieu, 1986).</p> <p>Diverse social networks are created when individuals interact with their peers, as well as individuals outside of their peer groups in the larger community (Flora & Flora, 1993).</p> <p>Agency is enhanced within social networks when individuals have access to diverse information channels and the ability to make choices (Newman & Dale, 2005).</p> <p>Trust and reciprocity is facilitated within social networks through frequency of interaction, the willingness for individuals to engage others in reciprocal activity, and norms are created which encourage trust and reciprocity (Coleman, 1988).</p>	<ol style="list-style-type: none"> 1. What programmatic characteristics contribute to the development of social capital among immigrant program participants? <ol style="list-style-type: none"> a. What types of <i>embedded resources</i> within the programs contribute to the development of social capital among immigrant program participants? b. What characteristics within the programs contribute to the development of <i>social ties and networks</i> among immigrant program participants? c. What characteristics within the programs contribute to the development of <i>agency</i> among immigrant program participants? d. What characteristics within the programs contribute to the development of <i>trust and reciprocity</i> among immigrant program participants?

Immigrant farming programs with the highest level of social capital development will have the highest levels of economic, physical, and social benefits for their participants.	Social capital development leads to benefits for individuals in the form of economic, physical, and social returns (Bourdieu, 1986; Lin, 1999).	<p>2. How does social capital development within immigrant farming programs contribute to the well-being of immigrant program participants, if at all?</p> <ul style="list-style-type: none"> a. How do <i>embedded resources</i> within the program contribute to the well-being of the immigrant program participants, if at all? b. How does the development of <i>social ties and networks</i> among immigrant program participants contribute to their well-being, if at all? c. How does the development of <i>agency</i> among immigrant program participants contribute to their well-being, if at all? d. How does the development of <i>trust and reciprocity</i> among immigrant program participants contribute to their well-being, if at all?
Social capital development within immigrant farming programs that include African immigrant participants will not differ from immigrant farming programs with immigrant participants from other world regions.	<p>Immigrants from different nations of origin in the U.S. face similar obstacles and challenges (Garrett, 2006; Gilbert, Hein, & Losby, 2010; United Nations High Commissioner for Refugees, 2002).</p> <p>Immigrant farming programs targeting African and non-African immigrants have similar objectives, utilize similar approaches to meet those objectives, and have similar outcomes (Hightower & Griffin, 2012).</p>	<p>3. How does social capital development within immigrant farming programs that include African immigrant participants differ from immigrant farming programs with immigrant participants from other world regions, if at all?</p>
Immigrant farming programs with more female participants compared to male participants will have a greater number of well-being outcomes.	Female farmers can often mobilize their existing social networks in order to access new markets (Traugher et al., 2008).	<p>4. How does the gender of the participants affect social capital development within immigrant farming programs that include African immigrant participants?</p>

UNIT OF ANALYSIS

Immigrant farming programs in the United States serve as the unit of analysis in this study. The experiences, attitudes, and perceptions of the diverse individuals associated with immigrant farming programs will be explored to determine how organizations administering immigrant farming programs affect the development of social capital for immigrant participants within their programs. The individuals include program participants, agricultural educators, and community partners. Focusing on this unit of analysis is fitting for this study because social capital development is being investigated at the program level rather than the program participant level.

RESEARCH DESIGN

Type of study

This study has a convergent parallel mixed method design as described by Creswell and Plano Clark (2011). Convergent parallel designs involve the researcher collecting and analyzing the quantitative and qualitative data at the same time, and then integrating the findings into a cohesive summary. For a timeline of the research phases and procedures see Appendix A. The quantitative research strand in this study focuses on a national online survey of agricultural educators from immigrant farming programs across the country. The qualitative research strand focuses on a multiple-case study involving two immigrant farming programs in a Midwestern state and a Southern state. To better understand how this study was conducted an overview will be provided of the research design, including 1) the rationale for using a mixed method design, 2) the convergent parallel mixed method design, 3) the protection of human subjects in the study,

4) the quantitative research strand, 5) the qualitative research strand, and 6) the integration of the quantitative and qualitative research strands.

Rationale for the mixed method design

This study is considered mixed method research because it integrates quantitative and qualitative research approaches into a single research design to study a phenomenon (Tashakkori & Teddlie, 1998). The researcher chose a mixed method research design because the phenomenon in question is an emerging issue that is complex (Creswell & Plano Clark, 2011). Mixed method research designs offer a more comprehensive approach to investigate complex phenomena compared to using only quantitative or qualitative methods (Creswell & Plano Clark, 2011).

Mixed method research designs have been prolific in the area of agricultural and food systems research in both domestic and international journals. Previous mixed method research studies have focused on food security (Furey, Strugnell, & McIlveen, 2001; Gareau, 2004; Hart, 2011), local food (Berlin, Lockeretz, & Bell, 2009; Inwood, Sharp, Moore, & Stinner, 2009; Selfa, & Qazi, 2005), and urban agriculture (Bleasdale, Crouch, & Harlan, 2011; Oberholtzer, Clancy, & Esseks, 2010; Reynolds, 2011). Few mixed method research studies have focused on beginning farmers programs, particularly with respect to beginning farmer programs for immigrant farmers (Gillespie & Johnson, 2010; Ostrom, Cha, & Flores, 2010). In addition, few evaluations of immigrant farming programs have incorporated mixed method research designs (Hightower & Griffith, 2012).

Convergent parallel mixed method design

This study has a convergent parallel mixed method design (Table 3). The quantitative research strand involves a national online survey and the qualitative research strand includes a multiple-case study involving two cases. The design is considered convergent because the qualitative and quantitative research strands inform each other throughout the data collection, analysis, and interpretation phases (Creswell & Plano Clark, 2011). The timing of this study is parallel. Parallel timing means that the data collection, analyses, and interpretation of the quantitative and qualitative research strands occurred concurrently (Creswell & Plano Clark, 2011). Within this study the priority is equally split between the quantitative and qualitative research strands.

Table 3

Key Components of the Mixed Method Research Design

Design^a	Timing	Priority	Mixing	Notation
Convergent	Parallel	Equal	Yes	QUAN + QUAL

^a Design follows categories of Creswell & Plano Clark (2011).

Mixing. Mixing occurred in multiple research phases within this study. Mixing involves the explicit integration of the quantitative and qualitative research strands within a single study (Yin, 2006). Mixing can occur in the research questions, the unit of analysis, the samples of the study, the data collection, and throughout the analysis process (Yin, 2006). In this study, mixing occurred in all five of the research phases outlined by Yin (2006). Mixing took place in the development of the research questions, with the inclusion of mixed method research questions in the study. Mixing also took place in the unit of analysis in that the same unit of analysis was used in the quantitative and qualitative research strands. Mixing occurred in the sample of the study. The sample used for the qualitative research strand was a subset of the sample used in the

quantitative strand. Using a subset of the sample from one research strand in another research strand is a form of mixing called linking (Yin, 2006). Mixing also occurred in the data collection in that the quantitative and qualitative protocols collected data on the same variables and contained similar questions. Finally, mixing took place in the analysis process. The results from the quantitative research strand were integrated with the results of the qualitative research strand.

Benefits of using a convergent parallel mixed method design. The primary benefit of using a convergent parallel mixed method design is that it allows the researcher to triangulate the research findings from the qualitative and quantitative strands (Creswell & Plano Clark, 2011). Another benefit in this design is it allows researchers to “bring together the differing strengths and non-overlapping weaknesses of quantitative methods (large sample size, trends, generalization) with those of qualitative methods (small sample, details, in depth)” (Creswell & Plano Clark, 2011, p. 77). In addition, this design allows researchers to “illustrate” the findings of the quantitative research strand with the qualitative research strand (Creswell & Plano Clark, 2011, p. 77).

Challenges to using a convergent parallel mixed method design. One of the challenges to this research design is that researchers must have expertise in both quantitative methods and qualitative methods (Creswell & Plano Clark, 2011). It also requires that the data collection for both strands occurs simultaneously which can be time consuming (Creswell & Plano Clark, 2011). It can also be challenging to merge the findings from a quantitative research strand with a qualitative research strand (Creswell & Plano Clark, 2011).

Protection of human subjects

In the development of this study, the researcher sent the research protocol to the Virginia Polytechnic and State University Review Board (IRB) for approval. The IRB reviewed the research protocol to determine the level of risk that human subjects participating in this study would experience. There were no anticipated benefits and minimal risks for participants in the study. Participants did not receive compensation for their involvement in this study.

The identity of the participants, and that of any individuals they mentioned, was kept confidential at all times and was known only to the researcher. The interviews were audio recorded and later transcribed. When transcribing the interviews, pseudonyms (i.e., false names) were used for the participants' names and any other individuals they mentioned. These pseudonyms were also used in preparing all written reports of the research. Any details in the interview recordings that could identify the participants, or anyone they mentioned, were altered during the transcription process. After the transcribing was complete, the interview recordings were stored in locked offices used by the researcher. The audio recordings were destroyed after the analyses were complete, but the transcriptions were stored indefinitely.

Participation in this research was entirely voluntary and participants who refused to participate did not receive a penalty or loss of benefits to which they were otherwise entitled. Similarly, participants were free to withdraw from the research study at any time. If participants chose to withdraw from the research, any information about them and any data not already analyzed were destroyed. Participants were also free to refuse to answer any question.

Quantitative research strand: Online survey

The purpose of the quantitative research strand was to identify characteristics of immigrant farming programs which contributed to social capital development within these programs. Additionally, the quantitative strand was used to quantify the benefits accrued by immigrant program participants. An online survey was developed to measure the independent variables associated with social capital development within the immigrant farming programs, including 1) embedded resources, 2) social ties and networks, 3) agency, and 4) trust and reciprocity. The survey also measured the economic, social, and physical benefits received by immigrant program participants through their involvement in the programs.

Population. The population for the quantitative strand included agricultural educators working with immigrant farming programs across the United States. No exhaustive list existed of immigrant farming programs in the U.S. Therefore, the researcher developed a list of these programs by compiling partial lists of immigrant farming programs from the websites of granting agencies and organizations that focus on immigrant farming initiatives. Immigrant farming programs were identified through searches of the following organizations' websites: the USDA's National Institute of Food and Agriculture (n=49), the USDA's Start2Farm initiative (n=24), the National Immigrant Farming Initiative (n=24), and the Office of Refugee Resettlement's Refugee Agriculture Partnership Program (n=14). The researcher also contacted Hugh Joseph, the program manager for the Refugee Agriculture Partnership Program, who provided an additional list of immigrant farming programs (n=48).

The researcher then created a Google Alert search which provided weekly updates on local, regional, and national news stories that featured the search terms "immigrant farmer" or "refugee farmer." Through the Google search 13 immigrant farming programs were identified.

In total, the researcher identified 172 immigrant farming programs through these searches. The researcher then consolidated the multiple lists of immigrant farming programs into a single list and deleted duplicate programs from the list. The researcher then reviewed the websites of the immigrant farming programs to verify that these programs targeted immigrant farmers. Through this process, the researcher identified 125 immigrant farming programs.

The population for the quantitative research strand focused on agricultural educators associated with the 125 immigrant farming programs. The researcher defined agricultural educators as individuals working directly with immigrant farming programs. The researcher conducted a search of the websites of the immigrant farming programs to determine the primary roles of agricultural educators in these programs. The researcher found the two main roles for agricultural educators were program director and instructor. Program directors were agricultural educators in the role of program manager or coordinator. The titles associated with program directors included farm training program manager, farm incubator program manager, and farm training coordinator. Instructors were agricultural educators that worked directly with program participants as mentors, educators, or translators. The titles associated with instructors included farm mentor, farmer trainer, Cooperative Extension specialist or educator, and translator.

The researcher found that within immigrant farming programs multiple individuals worked in the roles of program director and instructor. As a result, the researcher decided to include multiple individuals from each program in the population. The researcher made this decision to better reflect the diverse group of people working with immigrant farmers in these programs. The researcher determined the population of the study would include up to three agricultural educators from the 125 beginning farmer programs for a total of 274 agricultural educators.

Sampling method. The researcher chose to use the entire population of 274 agricultural educators in the quantitative portion of the study. The researcher decided to send the survey to the entire population rather than a sample of the population because the data collected from the population provided new baseline information concerning immigrant farming programs across the country. Collecting data on immigrant farming programs across the United States provided foundational data which did not previously exist.

Survey instrument development. The researcher could not identify an existing survey instrument which measured social capital development within immigrant farming programs. Therefore, the researcher developed a survey instrument to collect data on social capital development within immigrant farming programs. See Appendix B to review the survey instrument.

The researcher reviewed a number of existing surveys to guide the development of the survey instrument. The researcher reviewed surveys on beginning farmer programs, including the Massachusetts New Entry Beginning Farmer survey and the Virginia Beginning Farmer and Rancher Coalition Project survey. The researcher also reviewed surveys on social capital development such as the Australian Institute of Family Studies' Families, Social Capital and Citizenship survey. In addition, the researcher reviewed surveys on well-being such as the Gallup-Healthways Well-Being Index.

From these surveys, the researcher created a 13-page online survey which assessed the attitudes, perceptions, and experiences of agricultural educators who worked with immigrant farming programs. The researcher was guided in the survey design by the Tailored Design Method which offers recommendations concerning the construction of survey items, the survey layout, and the protocol for contacting the respondents (Dillman, Smyth, & Christian, 2009). The

survey included Likert-scale questions which measured variables associated with four social capital constructs, namely 1) embedded resources, 2) social ties and networks, 3) agency, and 4) trust and reciprocity. The survey also contained Likert-scale questions that measured variables associated with the economic, physical, and social well-being of immigrant program participants. In addition, the survey incorporated demographic questions on the immigrant farming program, survey respondents, and immigrant program participants.

An expert panel reviewed the survey instrument. The expert panel was made up of researchers and practitioners specializing in beginning farmer programs, social capital theory, community and economic development, and survey design. The expert panel included the following members.

Expert Panel Members

- Dr. Kim Niewolny, Agricultural and Extension Education Department, Virginia Tech
- Dr. Mark Brennan, Department of Agricultural Economics, Sociology, and Education, The Pennsylvania State University
- Dr. Bruce Hull, Forest Resources and Environmental Conservation Department, Virginia Tech
- Dr. Mike Lambur, Virginia Cooperative Extension, Virginia Tech

The expert panel reviewed the survey instrument to ensure content validity. Content validity is the level to which the instrument measures the variables (Ary et al., 2006). The expert panel also reviewed the survey instrument to confirm face validity. Face validity measures “the acceptability of the assessment to users” including how well the respondents understand the terminology used in the survey (Haynes, Richard, & Kubany, 1995, p. 243). The expert panel also reviewed the contact letters which were sent to the survey population. After the expert panel reviewed the quantitative research, the researcher revised the protocol based on the panel’s

recommendations. The researcher then sent the quantitative research protocol to the IRB for approval. See Appendix C for the IRB approval letter for the quantitative protocol.

Pilot testing. The researcher conducted a pilot test of the survey instrument in May 2012 with 13 individuals who had experience working with beginning farmer programs and immigrant farming programs. These individuals were members of the Institute for Social and Economic Development's Refugee and Agricultural Partnership Program and Virginia Tech's Virginia Beginning Farmer and Rancher Coalition Project. The researcher decided not to include individuals who were currently working with immigrant farming programs in the pilot study. The researcher made this decision because there were a limited number of individuals who could be identified who worked with immigrant farming programs in the U.S. She did not want to reduce the number of individuals that were included in the survey population.

Pilot studies can be effective tools to "assess the appropriateness of the operational definitions and the research methodology" (Ary et al., 2006, p. 112). Pilot studies also allow researchers to test the hypotheses being tested with the survey, and provide information to better refine the survey (Ary et al., 2006). The researcher in this study used the pilot test of the survey instrument to ensure the readability of the survey items, identify any issues concerning the survey layout, and discover methods to achieve a higher response rate. The results from the pilot test of the survey instrument were used by the researcher to further revise the instrument. The revised survey was sent to the IRB for approval. See Appendix D for the IRB approval letter for the revised quantitative protocol.

Data collection and survey administration. The researcher chose to distribute the survey online in order to reach the greatest number of survey recipients across the country. The researchers also contacted the survey recipients multiple times over email concerning the survey

to increase the response rate. Dillman et al. (2009) recommends multiple contacts with survey recipients including a pre-notice letter, survey invitation, and multiple reminders. The researcher initiated four email contacts with the survey recipients, including a pre-notice letter, a survey invitation, and two survey reminders (See Appendix E-H). Data collection for the online survey occurred over an eight-week period of time, from June 11th – August 1st, 2012.

Validity and reliability. The researcher took measures to ensure the quantitative credibility standards of internal validity, external validity, and reliability for the quantitative research strand. Researches argue that for scientific research to be useful it needs to meet a minimum standard of credibility (LeCompte & Goetz, 1982; Morse, Barret, Mayan, Olson, & Spiers, 2002). The most common standards for credibility involve reliability and validity (LeCompte & Goetz, 1982). Validity is a measure of how well an instrument “accurately reflects the concept it is intended to measure” (Babbie, 2004, p. 143). Validity can be broken down into internal validity and external validity (LeCompte & Goetz, 1982). Internal validity refers to the “validity of the inferences about whether the effect of variable ‘A’ (the treatment) on variable ‘B’ (the outcome) reflects a causal relationship” (Ary et al., 2006, p. 291). External validity, on the other hand, addresses the issue of the generalizability of the research or “the degree to which (the) representations may be compared legitimately across groups” (LeCompte & Goetz, 1982, p. 32). External validity can be addressed through random sampling of the target population, replicating the study in a new setting, and providing “clearly stated operational definitions for all variables related to subjects or setting” (Ary et al., 2006, p. 319).

In this study, the researcher engaged in a number of strategies to ensure internal and external validity. The researcher conducted a pilot test of the survey instrument to confirm that the variables were adequately being measured. An expert panel also reviewed the survey

instrument to ensure the instrument had content validity and face validity, which are forms of internal validity. To address the issue of external validity, the researcher provided operational definitions for all of the variables.

Reliability focuses on the consistency of an instrument, and measures to what extent the findings would remain constant if the study was replicated (Ary et al., 2006; LeCompte & Goetz, 1982). The reliability of an instrument can be affected by the length of the instrument, the heterogeneity of the respondent group, and the objectivity of the scoring (Ary et al., 2006). Reliability can be measured through a reliability coefficient. “The reliability coefficient shows the extent to which random errors of measurement influence scores on the test” (Ary et al., 2006, p. 278). A variety of tests can be conducted to determine the internal consistency of an instrument such as the split-half reliability coefficient, the Kuder-Richardson formula 20, and the coefficient of homogeneity. The coefficient of homogeneity, also called Cronbach alpha, is used to measure “items that are not scored simply as right or wrong, such as attitude scales or essay tests” (Ary et al., 2006, p. 264). Cronbach alpha tests are often conducted with instruments that include Likert-scale items that offer a range of scores (Ary et al., 2006). To address the issue of reliability, the researcher calculated a Cronbach alpha for the responses of the individuals who completed the pilot study.

Mode of analysis. Statistical analyses were conducted on the survey data to address the research questions. To answer research question one, “What programmatic characteristics contribute to the development of social capital among immigrant program participants?”, the researcher conducted descriptive statistical tests. The researcher calculated the mean and standard deviation among the survey responses for the program characteristics associated with

the development of social capital, namely embedded resources, social ties and networks, agency, and trust and reciprocity.

To answer question two, “How does social capital development within immigrant farming programs contribute to the well-being of immigrant program participants, if at all?”, the researcher developed sequential multiple regression models exploring with the variables measuring the social capital factors as the independent variables and the well-being outcomes as the dependent variable. In total, the researcher constructed six multivariate regression models. See Table 4 for a description of the regression models. Model one includes the control variables. Models two through five include the independent variables measured for each of the social capital constructs. Model six contains the control variables and all of the independent variables. Model six offers a model of the additive effect of all of the variables on the dependent variable.

Table 4

Multivariate Regression Models for Immigrant Program Participant Well-Being

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control variables	X					X
Embedded resource		X				X
Social ties and networks			X			X
Agency				X		X
Trust and reciprocity					X	X

To address question three, “How does social capital development within immigrant farming programs that include African immigrant participants differ from immigrant farming programs with immigrant participants from other world regions, if at all?”, the researcher conducted analysis of variance (ANOVA) tests. The researcher compared immigrant farming programs with African immigrant participants to immigrant farming programs without African immigrant participants with respect to social capital development and participant well-being.

Qualitative research strand: Multiple-case study

The qualitative research strand involved a multiple-case study. The study investigated two immigrant farming programs in a Midwestern state and a Southern state. The purpose of the qualitative research strand was to gain a deeper understanding of social capital development in immigrant farming programs. Case studies offer a number of opportunities and challenges for researchers. “The strength of case studies is their detail, their complexity, and their use of multiple sources to obtain multiple perspectives” (Rossman & Rallis, 2003, p. 105). The ability of case studies to provide detail within complex situations is critical to studying the phenomenon at hand which explores social capital development within immigrant farming programs from the perspective of diverse individuals associated with the programs. The researcher developed a multiple-case study following Yin’s (2009) recommendations on case selection and case report development.

Case selection. The case selection began in June 2012. The researcher reviewed the respondents who had completed the survey by June 13, 2012. The researcher conducted phone interviews with five of the respondents to identify programs that could be used for the cases, as well as determine the selection criteria. The researcher conducted the phone interviews between June 15, 2012 and July 2, 2012. Through the interview process and a review of the literature, the researcher identified three criteria which would be used to select the cases, including the 1) world region of origin of the participants, 2) classification of the county in which the program was located, and 3) gender of the participants. Table 5 offers a detailed description of the criteria and the two programs which were selected.

Table 5

Criteria for Case Selection in the Qualitative Research Strand

Selection Criteria	Midwestern State Program	Southern State Program
World region of origin of participants ^a	Africa	Africa
Classification of county ^b	Metropolitan area	Metropolitan area
Gender of participants	Majority are male	Majority are female

^a World region of origin given by the U.S. Department of Homeland Security (2011).

^b Classification of county given by U.S. Census Bureau (2012).

The researcher chose two selection criteria that operated as control variables: world region of origin of the participants and classification of the county in which the programs were located. The researcher used world region of origin of the participants as a criterion in order to control for cultural differences that could exist among immigrant farmers from different regions of the world. The researcher chose to focus on African immigrant program participants rather than participants from other regions of the world in order to fill a void in the literature with respect to African immigrant farming programs. In addition, the researcher chose to use the classification of the county in which the programs were located as a control variable. Research has shown that individuals within urban areas tend to develop vertical networks and individuals within rural areas tend to develop horizontal networks (Hofferth & Iceland, 1998). The researcher wanted to ensure that the county in which the programs were located did not influence the development of social capital within the programs.

The researcher also selected a criterion which would allow for differences among the programs for the purpose of theory replication. Theory replication “predicts contrasting results but for anticipatable reasons” (Yin, 2009, p. 54). The researcher wanted to test the theory of social capital with respect to gender. Research shows that men and women access social capital differently (Burt, 1998). In a recent study, female farmers were able to activate their social

networks to develop new markets in the local community for their agricultural products (Trauger et al., 2010). The researcher wanted to test the hypothesis that female immigrant participants would be more adept at leveraging social networks to create markets than male immigrant participants.

Through this process, the researcher identified two programs for the cases: one program in a Southern state and one program in a Midwestern state. The program in the Southern state included immigrant farmers from Africa (Burundi), was located in a county that was considered a metropolitan area, and included predominantly female participants. The program in the Midwestern state included immigrant farmers from Africa (Liberia), was also located in a county considered to be a metropolitan area, and included predominantly male participants.

Qualitative protocol development. The researcher developed a series of documents to be included in the qualitative protocol, including interview guides, consent forms, and a translator confidentiality agreement form. The researcher developed three interview guides for the main groups of individuals associated with the programs: 1) program participants, 2) agricultural educators working with the program, and 3) community partners. See Appendix I, J, and K to review the interview guides. The researcher also developed two consent forms (Appendix L and M). The first consent form was used with individuals who had strong English language skills. The second consent form was written using simplified language and translated into Kurundi. A large group of the African immigrant program participants were literate in Kurundi. For interview participants who did not have strong English skills and did not speak Kurundi, verbal consent was obtained. When necessary, the researcher utilized translators as part of the data collection. The researcher developed a translator confidentiality agreement form to ensure that the information the translator was privy to during the interviews remained confidential

(Appendix N). The researcher sent the qualitative protocol to the IRB for approval. Appendix O includes the IRB approval letter for the qualitative protocol.

Data collection methods. The data collection for the case studies included site visits to the Midwestern state and the Southern state. During the site visits, the researcher conducted interviews and focus groups with individuals associated with the programs (e.g., program participant, agricultural educator, and community partner). When the researcher conducted focus groups, the interview guides for the appropriate individuals were used. The researcher recorded the interviews and focus groups using a digital audio recorder. The site visits occurred from August - September 2012. During the site visits, the researcher conducted interviews with program participants, agricultural educators working with the program, and community partners. In addition, she conducted focus groups with program participants. The researcher also conducted an interview over email with an agricultural educator in another state.

Mode of analysis. The digital audio recordings of the key informant interviews and focus groups from the two immigrant farming programs were transcribed. The researcher used the software Atlas.ti to analyze the transcripts. The researcher used an initial code list which she developed from the list of social capital factors explored in the quantitative research strand. She chose to use the same list of social capital factors so the results from the survey and the case studies could be integrated together in the analysis and interpretation phases. The initial code list included the following codes: 1) embedded resources, 2) social ties and networks, 3) agency, 4) trust and reciprocity, 5) well-being outcomes, and 6) gender issues.

The researcher used the initial code list to code the transcripts using Glaser and Strauss's (1967) Constant Comparative Method. The Constant Comparative Method provides a process to analyze transcripts, create code lists, code transcripts, identify themes among the codes, and

create family categories of themes (Glaser & Strauss, 1967). The researcher identified themes within passages of the transcripts. Passages were defined as paragraphs of one or more sentences which focus on a single thought or topics.

The researcher added codes to the code list as additional themes emerged from the transcripts. When the coding process was completed, the researcher reviewed the code list. Codes that were associated with a limited number of passages were combined or deleted. The researcher then reviewed the codes to create family codes or larger categories which describe multiple codes. The researcher then used the list of codes to compile themes related to research question two, “How does social capital development within immigrant farming programs contribute to the well-being of immigrant program participants, if at all?”, and research question four, “How does gender of the participants affect social capital development within immigrant farming programs that include African immigrant participants?”.

Trustworthiness. The researcher conducted the qualitative research strand in a manner that led to trustworthiness throughout the process. Similar to the standards of validity and reliability within quantitative research, trustworthiness standards are used within qualitative research. The evaluation criterion of internal validity speaks to the issue of truthfulness (Ary et al., 2006). Lincoln and Guba (1985) translated internal validity into the qualitative evaluation criterion of credibility. Credibility measures how well the multiple factors that interact with each other are portrayed in the findings (Guba, 1981). Credibility involves representing “the realities of the research participants as accurately as possible” (Ary et al., 2006, p. 504). Credibility can be accomplished through member checks, data triangulation, and peer debriefing (Ary et al., 2006). In this study, the researcher addressed the issue of credibility through data triangulation. Data triangulation involves the researcher collecting data on the same variables through multiple

data collection methods (Ary et al., 2006). The survey, interviews, and focus groups collected information on the same social capital constructs of embedded resources, social ties and networks, agency, trust and reciprocity, and well-being.

External validity addresses the issue of the generalizability of the research or “the degree to which (the) representations may be compared legitimately across groups” (LeCompte & Goetz, 1982, p. 32). Generalizability is not a goal for qualitative research. Fundamentally qualitative research attempts to understand phenomena that occur within specific contexts (Guba, 1981). Therefore, findings from a study of a population within one context are not meant to be generalized to populations in other contexts (Guba, 1981). Instead of establishing generalizability through external validity, qualitative research focuses on transferability (Lincoln & Guba, 1985). Transferability considers how well researchers “provide sufficiently rich, detailed, thick descriptions of the context so that potential users can make the necessary comparisons and judgments” to other contexts (Ary et al., 2006, p. 507). Transferability can be achieved through providing rich descriptions of the context and participants, researcher reflective statements, and detailed information concerning the methods (Ary et al., 2006). The researcher in this study developed rich descriptions of the contexts and participants, provided detailed information about the methods, and provided a reflexivity statement to ensure transferability.

The criterion of reliability speaks to the issue of consistency of the data collection methods and results (Ary et al., 2006). Reliability can be translated into the qualitative criterion of dependability (Lincoln & Guba, 1985). Dependability differs slightly with reliability in that qualitative research by its very nature should involve some variations when the same study is applied to different populations and contexts (Ary et al., 2006). Dependability is a measure of how well “variations can be tracked or explained” when studies are replicated (Ary et al., 2006,

p. 509). Dependability can be achieved through developing audit trails and interrater reliability (Ary et al., 2006; Guba 1981). In this study, the researcher developed a detailed audit trail to ensure the dependability of the results.

Reflexivity statement. My positioning as a 38-year-old, single Caucasian woman working on her PhD orients me to the phenomenon of social capital development in immigrant farming programs in a particular way. As a doctoral student, I interact predominantly with other professionals who are Caucasian within my higher education institution. I come in contact with a few international graduate students in my courses. Many of the international students with whom I interact are married and have children. Through that experience I have come to believe that it is difficult to integrate into the United States from other countries, and it can be even more challenging to integrate into the United States with a family made up of a spouse and children.

I have also come in contact with immigrants through an experience I had as an agricultural educator working with the director of a beginning farmer program in southwest Virginia. I worked with the director to integrate a group of Somali Bantu farmers into the beginning farmer program. In previous years, the program included participants that were American natives and predominantly Caucasian. My job entailed working with the Somali Bantu farmers to facilitate their education during the program, developing promotional materials highlighting the program, and writing grant proposals to encourage future educational opportunities for the Somali Bantu farmers.

Through my work with the program and interacting with the Somali Bantu farmers I have acquired a number of beliefs concerning immigrant farmers in the United States. I believe that many immigrants come to the United States with an expectation that they will be able to achieve

a good life for themselves and their families. I believe that immigrants have an extremely strong work ethic and are willing to take additional jobs to take care of their families.

In terms of beginning farmer programs, I believe that these programs play a critical role in helping immigrant farmers achieve success in the United States. I feel that farming in the United States is extremely difficult, especially for new farmers. I believe that beginning farmer programs can help immigrant farmers navigate through many of the pitfalls that new farmers face.

Integration of quantitative and qualitative research strands

In order to fully address the research questions, the results from the quantitative research strand were integrated with the results from the qualitative research strand. The researcher integrated the findings of the survey with the themes that emerged through the case studies during the interpretation phase.

MEASURING THE SOCIAL CAPITAL CONSTRUCTS

This study explored four concepts which are critical to the development of social capital in immigrant farming programs. These concepts include 1) well-being outcomes, 2) embedded resources, 3) social ties and networks, 4) agency, and 5) trust and reciprocity. A discussion of the specific variables that were used to measure these constructs will be offered. Table 6 provides an overview of the concepts, variables, and data collection methods included in this study.

Table 6

Concepts, Variables, and Data Collection Methods

Concept	Variables	Data Collection Methods^a
Well-being outcomes	Benefits to economic well-being	Q20, I, FG
	Benefits to social and physical well-being	Q21, I, FG
Embedded resources	Technical training	Q9-11, I, FG
	Access to farming resources	Q12, I, FG
Social ties and networks	Interaction with outside organizations	Q14, I, FG
	Interaction with people in the program	Q15, I, FG
Agency	Access to information	Q22, I, FG
	Requirements to use farming resources	Q13, I, FG
	Barriers to participation	Q24, I, FG
Trust and reciprocity	Attendance	Q23, I, FG
	Program norms	Q17-19, I, FG
	Trust/reciprocity among people in program	Q25, I, FG
	Willingness to ask for guidance	Q16, I, FG
Control variables	Program characteristics	Q2-7, Q26, I, FG
	Survey respondent characteristics	Q8, I, FG
	Program participant demographics	Q27-31, I, FG

^a Q = Survey Question, I = Interview, FG = Focus group

Measuring well-being outcomes

Well-being was measured through two variables: benefits to economic well-being, and benefits to social and physical well-being. Benefits to economic well-being measured economic benefits accrued by the participants as a result of their involvement in the program. These benefits included increases to income, and less money spent on food. Benefits to social and physical well-being measured the social and physical benefits gained by the participants as a result of their involvement in the program. These benefits included greater access to healthy, culturally relevant food, hope for the future, and increases to physical activity.

Measuring embedded resources

The concept of embedded resources was measured through two variables: technical training and access to farming resources. Technical training measured the types of technical training offered to participants as part of the program in the areas of crop production and business and marketing skills. Access to farming resources measured the types of resources that participants gained access to through their involvement in the program such as farmland, farming tools, and utilities.

Measuring social ties and networks

The concept of social ties and networks was measured by two variables: interaction with outside organizations, and interaction with people in the program. Interaction with outside organizations measured the frequency of interaction that participants had with members of organizations outside of the program that helped them in their farming operations such as members of resettlement agencies, farmers markets, and Farm Bureau. Interaction with people in the program measured the frequency of interaction participants had with people inside the program such as other participants, instructors, and translators.

Measuring agency

The concept of agency was measured by three variables: access to information, requirements to use farming resources, and barriers to participation. Access to information measured how frequently the participants received new information from individuals within the program such as the instructors, translators, or other participants. Requirements to use farming resources measured the presence of requirements established by the program for participants to

use certain resources such as farming tools. Barriers to participation measured the obstacles facing participants to attending program activities such as lack of transportation or sickness.

Measuring trust and reciprocity

The concept of trust and reciprocity was measured by four variables: attendance, program norms, trust/reciprocity among people in program, and willingness to ask for guidance.

Attendance measured how often the majority of participants attend program activities. Program norms measured the level to which the agricultural educators have expectations of the participants. Trust/reciprocity among people in the program measured the extent to which the participants trust individuals associated with the program. It also measured the extent to which participants engage in reciprocal behavior such as sharing rides to program activities.

Willingness to ask for guidance measured how often participants ask people involved with the program for guidance.

Measuring control variables

Several control variables were included in this study that focused on the program characteristics, survey respondent characteristics, and participant demographics. Controlling of variables is a strategy used by researchers to “remove the effects of any variable(s) other than the independent variable that may influence the dependent variable” (Ary et al., 2006, p. 631). The researcher collected data on program characteristics such as the main sponsoring organization of the program and the duration of time the participants have been involved in the program. The researcher also collected data on characteristics of the survey respondents, namely the role of the

respondent within the program. Finally, the researcher collected demographic data on the program participants, including age, gender, income, and world region of origin.

CONCLUSION

In conclusion, this study investigated the development of social capital within immigrant farming programs. The researcher incorporated a convergent parallel mixed method design to fully explore the breadth and depth of this complex phenomenon. The quantitative research strand involved a national online survey, and the qualitative research strand incorporated a case study of two immigrant farming programs in a Midwestern state and a Southern state. The findings from the quantitative research strand and the qualitative research strand were compared and contrasted through the analysis process to provide a richer understanding of the phenomenon.

Chapter 5

Results

A discussion will be offered of the findings for the quantitative and qualitative research strands. Background information will be provided on the survey and the two programs involved in the case study. With regards to the survey, an overview will be provided of the survey respondents, characteristics of the programs they represent, and demographics of the immigrant farmers participating in their programs. The two immigrant farming programs in the case study will also be described, including the demographics of the surrounding cities and counties, and issues facing local communities in those cities. A description of the data collected for the case study will be offered. After the initial foundation is laid for the research results, the findings of the survey and the case study will be discussed as they pertain to each of the four research questions.

CONTEXT FOR THE RESULTS

Online survey

The researcher analyzed the data collected through the online survey using IBM SPSS Statistics. The researcher emailed an initial pre-notice letter to the survey population of 274 individuals. After the initial mailing, 17 individuals were removed from the survey population. These individuals were removed from the population because the email address was invalid or the individual emailed the researcher to report they no longer worked with the program or the program did not include immigrant participants. A link to the online survey was then sent to the remaining 257 individuals in the population. Of those individuals, 126 responded to the survey.

The first item on the survey asked respondents if they worked with a farming program that included immigrant participants. Of the 126 individuals that responded to the survey, 14 individuals stated that their program did not include immigrant participants. Those 14 individuals were disqualified and did not complete the rest of the survey. Out of a total of 243 qualified respondents (i.e., individuals who worked with farming programs that included immigrant participants), 112 individuals completed the survey. The response rate for the survey is 46.1%.

The number of items the respondents completed was calculated for each of the three sections of the survey (e.g., program characteristics section, social capital constructs section, and participant demographics section). The program characteristics section was completed by 83.5% of the respondents. The social capital constructs section was completed by 77.1% of the respondents. The participant demographics section was completed by 69.3% of the respondents.

The researcher conducted Cronbach's alpha tests on the social capital constructs and the well-being outcomes construct to determine the level of reliability of the items measuring the constructs (Table 7). George and Mallery (2003) state that Cronbach's alpha levels of 0.70 or above are acceptable, 0.8 or above are good, and 0.9 or above are excellent. The majority of the constructs had a Cronbach's alpha level of good (0.8) or excellent (0.9). The 28 items measuring embedded resources were found to have an excellent level of reliability (Cronbach's alpha = 0.901). The 18 items measuring social ties and networks were also found to have a good level of reliability (Cronbach's alpha = 0.770). The 21 items measuring trust and reciprocity were found to have an excellent level of reliability (Cronbach's alpha = 0.853). The 29 items measuring well-being outcomes were also found to have an excellent level of reliability (Cronbach's alpha = 0.924). The construct of agency was found to have a questionable level of reliability. The 10 items that measured agency had a Cronbach's alpha level of 0.588 which is described by George

and Mallery (2003) as questionable or below the acceptable level of reliability. Therefore, the survey results relating to the constructs of embedded resources, social ties and networks, trust and reciprocity, and well-being outcomes can be considered to be reliable. The survey results related to the construct of agency need to be considered in light of the questionable level of reliability.

Table 7

Reliability of the Items Measuring the Constructs

Construct	Number of Questions	Cronbach's Alpha
Embedded resources	28	0.901
Social ties and networks	18	0.770
Agency	10	0.588
Trust and reciprocity	21	0.853
Well-being outcomes	29	0.924

The respondents were asked to describe the immigrant farming programs in which they worked and their role in those programs. Approximately 82.9% of the respondents identified themselves as the program directors or coordinators, and 17.1% of the respondents identified themselves as the program instructors. The respondents were asked where their farming program was located in the United States. The programs were located in 83 unique zip codes across the U.S. (Figure 3). The majority of the respondents stated that the primary sponsoring organizations of the programs were community-based non-governmental organizations (55.9%), government organizations (15.1%), and Extension Services (14.0%).



Figure 3. Map of Immigrant Farming Programs Represented by Survey Respondents.

The respondents were asked to identify the types of farmers involved in their programs. The types of farmers included incubator farmers who were defined as multiple farmers on program-owned land, market gardeners who were defined as gardeners who sold some of the food that was grown, and independent farmers who were defined as farmers who independently own their farmland. The majority of the programs included incubator farmers (57.9%) and market gardeners (54.7%). A smaller percentage of programs included independent farmers (34.7%). These farmers were involved in the programs for varying lengths of time. Roughly 78.1% of the programs included farmers that had been participating for three years or less. On average, the programs included 51 farmers. The programs ranged in the number of participants from one farmer to 820 farmers.

Table 8

Socioeconomic Characteristics of Immigrant Farmer Participants

Demographic Characteristics	Percent
Age (n=68)^a	
Less than 15 years	30.9%
15 – 19 years	33.8%
20-24 years	36.8%
25-29 years	48.5%
30-34 years	61.8%
35-39 years	75.0%
40-44 years	79.4%
45-49 years	72.1%
50-54 years	60.3%
55 years or older	60.3%
Gender (n=83)	
Less than 25% women	14.5%
25-50% women	47.0%
More than 50% - 75% women	32.5%
More than 75% - 100% women	6.0%
Immigrant Status (n=85)	
Majority are refugees	54.1%
Majority are non-refugees	29.4%
Split between refugees and non-refugees	11.8%
Don't know	4.7%
World Region of Origin (n=82)^a	
Asia	76.8%
Africa	50.0%
North America	46.3%
South America	20.7%
Europe	14.6%
Oceania	6.1%
Income (n=69)^a	
Under \$9,999	34.8%
\$10,000 - \$19,999	36.2%
\$20,000 - \$29,999	36.2%
\$30,000 - \$39,999	24.6%
\$40,000 - \$49,999	15.9%
\$50,000 - \$59,999	11.6%
\$60,000 - \$69,999	8.7%
\$70,000 - \$79,999	7.2%
\$80,000 or more	7.2%

^a Respondents could check all answers that apply.

The respondents were also asked to describe the demographics of the immigrant farmers participating in their programs (Table 8). The majority of the programs included participants

from Asia (76.8%) and Africa (50.0%). The participants tended to be between the ages of 35 and 44. The participants were evenly split between men and women. The average annual household income of the participants was between \$10,000 and \$30,000. The majority of the participants were also classified as refugees.

The multiple-case study: Exploring a Midwestern program and a Southern program

The researcher conducted a case study with two immigrant farming programs, one program located in a Midwestern state and one program located in a Southern state. The program located in the Midwestern state is located in an urban city with a population of 393,806 (U.S. Census Bureau, 2012). The surrounding county is considered a metropolitan area or an area with a large, concentrated population bordered by “adjacent communities having a high degree of social and economic integration with that core” (U.S. Census Bureau, 2012, p.1). The population of the city consists of 65.1% Caucasian residents, 30.0% African American residents, 4.9% Latino residents, and 2.7% Asian residents (U.S. Census Bureau, 2012).

The city has seen a decline in its population over the past 10 years, and experts say that incoming immigrants may provide a much needed source of new residents for the city (Herman, 2010). The current level of immigrants living in the city is roughly five percent, much lower than the national average of 12.5 percent (Herman, 2010). Urban agriculture has become an emergent trend in the city (Snook, 2010). This has partly been due to the decline in population which left large amounts of condemned and abandoned land in the city. Urban renewal proponents have advocated reclaiming the land for urban gardens (Snook, 2010). The city now boasts over 150 community gardens and one of the largest urban farms in the country (Kisner, 2011; Snook, 2010).

The immigrant farming program is sponsored by the Extension Service. The program consists of 12 weeks of instruction in the classroom and field trips to neighboring farms and university-sponsored research centers. The program teaches a variety of topics, including urban agricultural production techniques, business development, and small farm planning. The program also teaches market development with a focus on local, direct marketing venues such as community-supported agriculture programs and farmers markets. The program began seven years ago with an English-speaking, American native audience. In 2010, the Extension Service received a USDA-NIFA Beginning Farmers and Ranchers Development Program grant that provided funding to expand the program to include immigrant participants. The Extension Service partnered with two local resettlement agencies to recruit immigrants who were engaged in employment training and had experience farming. The primary goal of the Midwestern immigrant farming program is to empower the immigrant farmers to own their own farms.

With the advent of the USDA-NIFA grant, the program had the resources to update the beginning farmer program to better meet the needs of immigrant farmers. The new version of the program contains less content on agricultural production and more content on market training. Visual learning aids and simplified language have been incorporated into the program to provide better instruction to participants with limited English language skills.

Immigrant farmers from a wide range of world regions have participated in the program, including farmers from Bhutan, Burma, Liberia, and the Congo. Multiple interpreters have been incorporated into the program to ensure the participants understand the content that is delivered. On average, there are three interpreters that come to each training session to provide translation to participants from Africa, Burma, and Bhutan. Agricultural educators provide a few sentences of instruction and then the three interpreters translate the material to their individual farmer

groups. After the immigrant farmers complete the course they are provided access to a plot of farmland at the program's incubator farm. The immigrants jointly farm a half-acre plot that is managed by the resettlement agencies. The incubator farm is located within the city, in an urban community. The farm is approximately 40 minutes from where the majority of the immigrant farmers live.

In addition to the program's incubator farm, the resettlement agencies have developed an organic farm that is managed by the immigrant farmers who have gone through the farming program. The organic farm is located on the property of a private resident and the land is leased to the immigrant farmers. The immigrant farmers receive continuing education at the organic farm from the homeowner who is a farmer and beekeeper, and farm mentors who work for the resettlement agencies. Peer learning also takes place among the immigrant farmers. The immigrant farmers currently sell their produce at three farmers markets across the city.

The program located in the Southern state is located in a smaller city with a population of 25,691 (U.S. Census Bureau, 2011). The surrounding county is also considered a metropolitan area (U.S. Census Bureau, 2012). One of the nearby cities is much larger with 617,996 residents and it serves as the population hub for the area (U.S. Census Bureau, 2012). The city containing the immigrant farming program is an adjacent community to this population hub (U.S. Census Bureau, 2012). The population of the city consists of 64.2% Caucasians, 22.6% African Americans, 10.7% Latinos, and 2.8% Asian (U.S. Census Bureau, 2011).

Since 2005, more than 500 refugees have made their home in the city with the largest populations coming from Africa, the Middle East, and Asia (Umble, 2010). Resettlement agencies in the area have targeted this city as a location for refugees and immigrants because it offers low-cost housing and more employment opportunities than other cities in the area (Umble,

2010). Residents of the city have complained to the resettlement agencies that they have reached their capacity to integrate these new immigrants into community (Umble, 2010). They have requested that future immigration to the city be halted or severely reduced (Umble, 2010).

The Southern immigrant farming program began as an initiative within the Burundian community. The Burundian community is organized into a local association with leaders and voting privileges for every Burundian living in the area. In 2008, the Burundian community identified a series of projects that could be developed to strengthen social cohesion within the community and provide supplemental income to the Burundians. The community voted for the development of a farming program as one of their community projects. They decided on a farming project because the Burundians have a heritage of farming back in Africa.

The Burundian community contacted the leader of a national Burundian mutual aid association located in a nearby city who provided assistance with the farming project. The leader of the association became the program coordinator and connected the Burundian farmers to influential members within the community. Connections were developed between the Burundian community and members of a local church who became agricultural educators in the program, and provided the Burundian farmers with access to two acres of farmland. The farmland is jointly managed by the Burundian community and any profits are divided among the members who have invested their labor into the farm. The program began with four families in 2008 and has now grown to 10 families in 2012. All members of the Burundian community are welcome to join the farm at any time.

The agricultural training in the program has consisted of production training and farm planning conducted by agricultural educators from the church, as well as farmers market training conducted by the program coordinator. The market training has included technical assistance on

setting up a farm stand, making change, and interacting with customers at the market. The program coordinator has also connected the Burundian farmers to a local farmers market manager who has provided guidance on setting up a farm stand in her farmers market. In addition, technical training has been provided through a peer exchange program with a group of Burundian farmers from Seattle, Washington. The Burundian farmers from Seattle have been successful in developing a farming program and have provided peer learning to the Burundians in the Southern program. A leading member of the Burundians from the Southern program travelled to Seattle to learn from the Burundian farmers. He learned about production and marketing techniques that had been successful in Seattle. A group of Burundian farmers from Seattle also traveled to the Southern program to teach the Burundians farmers about production techniques, farm planning, and effective leadership and management strategies.

Table 9

Qualitative Data Collection for the Case Studies

Type of Participant	Data Collection Method	# of Participants
Program participants	Interviews, focus groups	13
Agricultural educators	Interviews	6
Community partners	Interviews	10
<i>Total</i>		29

The researcher traveled to the program sites to conduct interviews and focus groups with three groups of individuals working with the immigrant farming programs, 1) program participants, 2) agricultural educators, and 3) community partners (Table 9). During the site visit to the Midwestern program, the researcher conducted interviews and a focus group with eight program participants from the United States, Liberia, Nepal, and Bhutan. She also interviewed two agricultural educators involved in the program, including the program coordinator and the primary instructor. In addition, the researcher conducted interviews with five community

partners, including farm mentors from immigrant resettlement agencies, a homeowner who leased farmland to develop the immigrant farm, and the director of a local immigrant farm.

During the site visit to the Southern program, the researcher conducted a focus group with five Burundian farmers participating in the program, including the farmer leader. She also conducted interviews with four agricultural educators involved with the program, including the program coordinator, two instructors from a local church, and a Burundian farmer in Seattle who organized the peer exchange program. The Burundian farmer from Seattle was interviewed via email. The researcher also interviewed five community partners of the program, including a homeowner who donated land to build the farm, a local farmers market manager, a leader of the Burundian community association, and two Burundian community members.

RESEARCH QUESTION 1: PROGRAMMATIC CHARACTERISTICS

The researcher analyzed the survey data to address research question one. The researcher compiled the survey data on variables measuring the four social capital constructs: embedded resources, social ties and networks, agency, and trust and reciprocity. A complete list of the survey results is available in Appendix P.

Table 10

Technical Training Topics Taught in Immigrant Farming Programs

Topic	N	Mean ^a	Std. Deviation
Production techniques for vegetables	89	3.60	1.33
Pest, disease, and weed management	89	3.04	1.36
Harvest and post-harvest handling	90	2.87	1.24
Soils, nutrients, and irrigation	90	2.84	1.23
Crop planning	91	2.74	1.16

^a The mean comes from a five-point scale ranging from '1' as never taught to '5' as six or more sessions taught.

Embedded resources. The variables that measured embedded resources within the programs were 1) the types of technical training conducted in the program, and 2) the farming resources made available to participants. These variables were found to be reliable measures of the construct of embedded resources (Cronbach's alpha = 0.901). The respondents rated how often certain topics were taught on a five-point scale ranging from '1' as never taught to '5' as taught in six or more sessions. Table 10 provides a list of the technical training topics taught in the immigrant farming programs. Respondents stated that the topics taught in the programs were production techniques for vegetables (mean = 3.60); pest, disease, and weed management (mean = 3.04); harvest and post-harvest handling techniques (mean = 2.87); soils, nutrients, and irrigation (mean = 2.84); and crop planning (mean = 2.74). An ANOVA test and a Student-Newman-Keuls post hoc test found that production techniques for vegetables was the most frequently taught topic in the immigrant farming programs ($F = 6.533$, $p = 0.000$).

The respondents were also asked to identify which farming resources they made available to immigrant program participants (Table 11). The respondents stated that they provided access to the following farming resources: farming tools and equipment (81.6%), farmland (77.0%), farming inputs (76.1%), markets (73.6%), and utilities (72.4%). An ANOVA test found that no farming resource was provided at a more frequent rate than the others ($F = 0.609$, $p = 0.656$).

Table 11

Farming Resources Made Available to Participants

Resource Type	Percent of Affirmative Answers	N
Farming tools and equipment	81.6%	87
Access to farmland	77.0%	87
Farming inputs	76.1%	88
Market access	73.6%	87
Utilities	72.4%	87

Social ties and networks. The variables that measured social ties and networks were 1) level of interaction with outside organizations, and 2) level of interaction within the program. These variables were found to be reliable measures of the construct of social ties and networks (Cronbach's alpha = 0.770). The respondents were asked how frequently program participants interacted with individuals from organizations outside of the program. The respondents rated the level of interaction on a five-point scale ranging '1' as never interact to '5' as interact a few times a week (Table 12). The respondents stated that the participants interacted with individuals from the following organizations: churches (mean = 2.47), resettlement organizations (mean = 2.41), farmers markets (mean = 2.28), community-supported agriculture programs (mean = 2.16), and universities or colleges (mean = 2.14). An ANOVA test found that there was no statistically significant difference between the level of interaction among the participants and members from different outside organizations ($F = 0.969$, $p = 0.424$).

Table 12

Level of Interaction with Organizations Outside of the Program

Outside Organizations	Mean ^a	Std. Deviation	N
Churches	2.47	1.39	81
Resettlement organizations	2.41	1.57	80
Farmers markets	2.28	1.26	83
Community-supported agriculture programs	2.16	1.43	82
Universities or colleges	2.14	0.96	83

^a The mean comes from a five-point scale ranging from '1' as never interact to '5' as interact a few times a week.

The respondents were also asked how frequently the immigrant participants interacted with individuals within the program (Table 13). The respondents stated that the participants interacted with other participants of the same ethnicity (mean = 4.01), instructors (mean = 3.76), program directors (mean = 3.66), translators (mean = 3.53), and other participants of the

different ethnicities (mean = 3.40). An ANOVA test found that there was no statistically significant difference between the level of interaction among the participants and different groups of individuals within the program ($F = 2.341$, $p = 0.054$).

Table 13

Level of Interaction within the Program

Individuals within Program	Mean ^a	Std. Deviation	N
Other participants (same ethnicity)	4.01	1.36	82
Instructors	3.76	1.29	85
Program directors	3.66	1.28	87
Translators	3.53	1.40	81
Other participants (different ethnicity)	3.40	1.56	82

^a The mean comes from a five-point scale ranging from '1' as never interact to '5' as interact a few times a week.

Agency. The variables that measured agency were 1) access to information, 2) requirements to use farming resources, and 3) barriers to participation. These variables were found to be questionable measures of the construct of agency in terms of reliability (Cronbach's $\alpha = 0.588$). Respondents were asked to rate their level of agreement with a series of statements concerning the channels used by participants to access information. The respondents rated their agreement with the statements on a four-point scale ranging from '1' as strongly disagree to '4' as strongly agree (Table 14). The respondents stated that participants accessed information through the following channels: interacting with each other (mean = 3.28), receiving information from the instructor (mean = 3.18), translators help participants' understand materials (mean = 3.13), asking questions (mean = 3.07), and communicating with the instructors and other participants (mean = 3.06). An ANOVA test found that there was no statistical difference between the frequency with which the participants accessed information through different channels ($F = 1.374$, $p = 0.242$).

Table 14

Participants' Ability to Access Information

Access to Information	Mean ^a	Std. Deviation	N
Interacting with each other	3.28	0.61	82
Receiving information from instructors	3.18	0.63	82
Translators helped participants understand materials	3.13	0.78	82
Asking questions	3.07	0.72	82
Communicating with instructors and other participants	3.06	0.71	83

^a The mean comes from a four-point scale ranging from '1' as strongly disagree to '4' as strongly agree.

The respondents were also asked to identify requirements that were established within the program for immigrant participants to use farming resources (Table 15). The respondents identified the following requirements for participants to use farming resources: a willingness to maintain production (65.5%), a minimum level of attendance (47.1%), signing a lease agreement or contract (44.8%), farming background (36.8%), and a small fee or rent (33.3%). An ANOVA test and a Student-Newman-Keuls post hoc test found that a willingness to maintain production was the most frequently cited requirement to use farming resources ($F = 4.757$, $p = 0.001$).

Table 15

Requirements to Use Farming Resources

Requirement	Percentage of Affirmative Answers	N
Willingness to maintain production	65.5%	57
Minimum level of attendance	47.1%	41
Sign a lease agreement or contract	44.8%	39
Farming background	36.8%	32
Small fee	33.3%	29

The respondents were also asked to identify barriers that prevented participants from attending program activities (Table 16). The respondents cited the following barriers to participation: having to work (90.2%), lack of transportation (56.1%), lack of child care (46.3%),

they were sick or a member of their family was sick (43.9%), and participants were not interested in the program topics (36.6%). An ANOVA test and a Student-Newman-Keuls post hoc test found that the most frequently cited barrier to participation was having to work ($F = 11.984$, $p = 0.000$).

Table 16

Barriers to Attendance for Participants

Barriers to Attendance	Percentage of Affirmative Answers	N
Having to work	90.2%	74
Lack of transportation	56.1%	46
Lack of child care.	46.3%	38
They were sick or a family member was sick	43.9%	36
They were not interested in program topics	36.6%	30

Trust and reciprocity. The variables used to measure trust and reciprocity were 1) attendance, 2) program norms, 3) trust and reciprocity within the program, and 4) a willingness to ask for guidance. These variables were found to be reliable measures of the construct of trust and reciprocity (Cronbach's $\alpha = 0.853$). The respondents were asked how often the immigrant participants attended program activities (Figure 4). The respondents stated that 46% of participants attended activities often (51% - 75% of the time), 27% of participants attended activities always (76% - 100% of the time), 23% of participants attended activities sometimes (26% - 50% of the time), and 4% of the participants attended activities rarely (0 - 25% of the time).

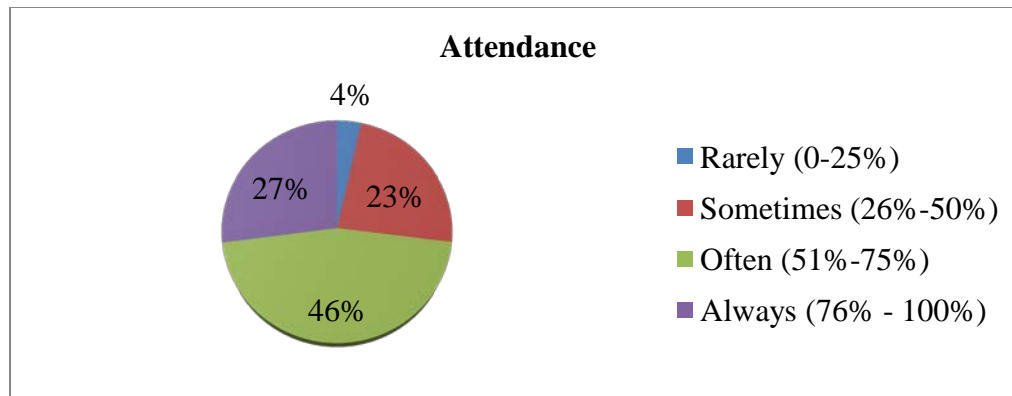


Figure 4. Attendance Level of Immigrant Participants.

The respondents were also asked about the expectations they had for the immigrant participants within their programs (Table 17). The respondents rated their level of agreement with a series of statements on a four-point scale ranging from ‘1’ as strongly disagree to ‘4’ as strongly agree. The respondents stated that they had the following expectations: participants will get involved in hands-on activities (mean = 3.43), participants will interact with each other (mean = 3.36), participants will attend program activities (mean = 3.36), participants will ask questions if they do not understand (mean = 3.28), and participants will interact with instructors and guest speakers (mean = 3.23). An ANOVA test found that among the expectations in the program, no single expectation was cited more frequently than the others ($F = 1.099$, $p = 0.357$).

Table 17

Expectations for Immigrant Participants within the Program

Program Expectations	Mean ^a	Std. Deviation	N
Participants will get involved in hands-on activities	3.43	0.63	82
Participants will interact with each other	3.36	0.66	81
Participants will attend program activities	3.36	0.63	84
Participants will ask questions if they don't understand	3.28	0.74	83

Participants will interact with instructors and guest speakers	3.23	0.69	83
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^a The mean comes from a four-point scale ranging from '1' as strongly disagree to '4' as strongly agree.

Respondents were also asked to rate their level of agreement with a series of statements concerning the level of trust and reciprocity within the program (Table 18). The respondents stated that participants felt welcome (mean = 3.29), participants helped each other during the program (mean = 3.27), participants shared rides to program activities (mean = 3.18), participants trusted the instructors (mean = 3.18), and participants worked with instructors to find solutions to issues (mean = 3.14). An ANOVA test found that among the statements concerning trust and reciprocity, no single statement was cited more frequently than the others ($F = 0.992$, $p = 0.412$).

Table 18

Level of Trust and Reciprocity within the Program

Trust and Reciprocity	Mean ^a	Std. Deviation	N
Participants feel welcome	3.29	0.62	80
Participants helped each other during the program	3.27	0.53	81
Participants shared rides to program activities	3.18	0.64	78
Participants trusted the instructors	3.18	0.55	80
Participants worked with instructors to find solutions to issues	3.14	0.61	80

^a The mean comes from a four-point scale ranging from '1' as strongly disagree to '4' as strongly agree.

Finally, respondents were asked how often participants solicit certain members of the program for guidance (Table 19). The respondents were asked to rate how frequently the participants asked for guidance on a five-point scale ranging from '1' as never ask for guidance to '5' as ask for guidance a few times a week. The respondents stated that participants asked for guidance from the following individuals of the program: immigrant participants of the same ethnicity (mean = 3.58), instructors (mean = 3.44), program directors (mean = 3.22), translators

(mean = 2.96), and immigrant participants of different ethnicity (mean = 2.79). An ANOVA test and a Student-Newman-Keuls post hoc test found the means for the following groups of individuals were statistically greater than the rest: immigrant participants of the same ethnicity, instructors, and program directors ($F = 3.780$, $p = 0.005$).

Table 19

Members of Program Who Participants Ask for Guidance

Program Members	Mean ^a	Std. Deviation	N
Immigrant participants of the same ethnicity	3.58	1.50	78
Instructors	3.44	1.48	82
Program director /coordinator	3.22	1.41	82
Translators	2.96	1.45	75
Immigrant participants of different ethnicity	2.79	1.54	77

^a The mean comes from a five-point scale ranging from '1' as never to '5' as a few times a week.

In summary, the researcher investigated the program characteristics that contributed to social capital development in immigrant farming programs. The type of technical training most frequently taught in the programs was training in vegetable production practices. The most common requirement established for using farming resources was a willingness to maintain production. The most common barrier to attendance was the participants having to work. The individuals within the program that participants most frequently asked for guidance were participants of the same ethnicity, instructors, and program directors.

RESEARCH QUESTION 2: SOCIAL CAPITAL AND WELL-BEING OUTCOMES

The researcher utilized data from the quantitative and qualitative research strands to answer research question two. The results from the data collected through the survey will be presented first, followed by the results from the data collected through the case study. The results from both research strands will then be integrated together.

Survey results

The researcher began by exploring the survey data in terms of the economic, physical, and social well-being outcomes generated through immigrant farming programs. The variables measuring well-being outcomes generated through the program were found to be reliable (Cronbach's alpha = 0.924). The respondents stated that the participants received a number of well-being outcomes through participating in the program such as interacting more with people in the program (mean = 3.40), involving family members in their farming activities (mean = 3.35), saving money on food (mean = 3.33), engaging in more physical activities (mean = 3.33), and family members were saving money on food (mean = 3.29). An ANOVA test found that among well-being outcomes no outcome was more likely to occur than the others ($F = 0.374$, $p = 0.827$).

Table 20

Well-Being Outcomes of Immigrant Farming Programs

Program Outcomes	Mean ^a	Std. Deviation	N
Interacting more with people in the program	3.40	0.59	82
Involving family members in their farming activities	3.35	0.62	82
Saving money on food	3.33	0.59	84
Engaging in more physical activities	3.33	0.55	82
Family members were saving money on food	3.29	0.64	82

^a The mean comes from a four-point scale ranging from '1' as strongly disagree to '4' as strongly agree.

The researcher then conducted a series of regression tests to determine which of the variables that contribute to social capital development were associated with well-being outcomes. Seven regression models were calculated to determine which independent variables were associated with well-being outcomes (Table 21). When reviewing the results of the multiple regression models it is important to keep in mind that the variables that measured the constructs

of embedded resources, social ties and networks, trust and reciprocity, and well-being outcomes were found to be reliable (Cronbach's $\alpha \geq 0.8$). The variables that measured the construct of agency were found to be questionable in terms of their reliability (Cronbach's $\alpha = 0.6$).

The researcher created a composite variable called "Well-being outcomes" to represent the likelihood of well-being outcomes occurring through immigrant farming programs. This variable was computed by adding the ratings the respondents gave to the 29 well-being outcomes listed in the survey. The respondents rated the frequency that each of the well-being outcomes was occurring in their program on a four-point scale ranging from '1' as strongly disagree this outcome is occurring to '4' as strongly agree this outcome is occurring (1 = 0% chance, 2 = 33% chance, 3 = 66% chance, 4 = 100% chance). The scores for well-being outcomes ranged from 29 to 116. The total scores were then divided by 29, the total number of outcomes in the survey. Each unit of the variable "Well-being outcomes" represents a 0.33 percent chance that the well-being outcomes are likely to occur in immigrant farming programs.

Table 21

Comparison of Seven Multivariate Models of Well-Being Outcomes

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Reduced Model
-- Standardized Regression Coefficients --							
Socio-demographic variables							
Age	-0.097*					-0.160*	-0.021
Gender (1 = female)	-0.110					-0.139	
Income	-0.214					-0.013	
Time in program	0.218*					0.231*	0.142*
Embedded resources							
Technical training		0.006				-0.002	
Access to resources		0.051**				0.025	0.007
Social ties and networks							
Interaction outside organizations			0.034***			0.022*	0.016*

Interaction in program	0.004					-0.014	
Agency							
Barriers to participation				0.014		0.005	
Requirements to use resources			0.049**			-0.027	0.020
Access to info			0.047***			0.022	0.041***
Trust and reciprocity							
Attendance					0.068	0.010	
Program norms					0.006	0.043	
Trust/reciprocity					0.028	0.061	
Willingness to ask for guidance					0.007	-0.015	
R ² Adjusted	0.189	0.203	0.252	0.230	0.066	0.643	0.390
F value	2.984*	11.330***	14.470***	8.285***	2.310	4.606**	7.389***

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

Model 1: Socio-demographic variables. Model 1 explores whether or not the socio-demographic variables are associated with well-being outcomes. The socio-demographic variables included in this model are 1) age of participant, 2) gender of participant, 3) income level of participant, and 4) time participant has been in program (Table 22). The overall model was found to be significant ($F = 2.984$, $p < 0.05$). The adjusted R^2 for the model was 0.189 which means the model accounts for 18.9% of the variance in the well-being outcomes scores.

Table 22

Summary of Regression Model with Socio-Demographic Variables

Socio-demographic Variables	Standardized Regression Coefficient
Age	-0.097*
Gender (1 = female)	-0.110
Income	-0.214
Time in program	0.218*
R ² Adjusted	0.189
F value	2.984*

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

In the model, the variables of age and time in program were found to be associated with well-being outcomes. Age had a regression coefficient of -0.097 ($p < 0.05$) which means that for every unit increase in age, the well-being outcomes are reduced by 0.097 units. In other words, as the age of the participant increases by five years, the likelihood that well-being outcomes will occur decreases by 3.20 percent. Time in program had a regression coefficient of 0.218 ($p < 0.05$) which means that for every unit increase in time, the well-being outcomes are increased by 0.218 units. In other words, for every 2 years the participants are involved in the program the likelihood that well-being outcomes will occur increases by 7.19 percent.

Model 2: Embedded resources variables. Model 2 explores whether or not embedded resources variables are associated with well-being. The embedded resources variables included in this model are 1) technical training, and 2) access to resources (Table 23). The overall model was found to be significant ($F = 11.330$, $p < 0.001$). The adjusted R^2 for the model was 0.203 which means the model accounts for 20.3% of the variance in the well-being outcomes scores.

Table 23

Summary of Regression Model with Embedded Resources Variables

Embedded Resources Variables	Standardized Regression Coefficient
Technical training	0.006
Access to resources	0.051**
R^2 Adjusted	0.203
F value	11.330***

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

In the model, the variable access to resources was found to be associated with well-being outcomes. Access to resources had a regression coefficient of 0.051 ($p < 0.01$) which means that for every unit increase in the access to resources, the well-being outcomes increase by 0.051

units. In other words, as the participants gain access to one more farming resource, the likelihood that well-being outcomes will occur increases by 1.68 percent.

Model 3: Social ties and networks variables. Model 3 explores whether or not social ties and networks variables are associated with well-being outcomes. The social ties and networks variables included in this model are 1) interaction with outside organizations, and 2) interaction within the program (Table 24). The overall model was found to be significant ($F = 14.470$, $p < 0.001$). The adjusted R^2 for the model was 0.252 which means the model accounts for 25.2% of the variance in the well-being outcomes scores.

Table 24

Summary of Regression Model with Social Ties and Networks Variables

Social Ties and Networks Variables	Standardized Regression Coefficient
Interaction with outside organizations	0.034***
Interaction within program	0.004
R^2 Adjusted	0.252
F value	14.470***

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

In the model, interaction with outside organizations was found to be associated with well-being outcomes. Interaction with outside organizations had a regression coefficient of 0.034 ($p < 0.001$) which means that for every unit increase in interaction with outside organizations, the well-being outcomes increase by 0.034 units. In other words, as the participants interact with members of one more outside organization, the likelihood that well-being outcomes will occur increases by 1.12 percent.

Model 4: Agency variables. Model 4 explores whether or not the agency variables are associated with well-being outcomes. The agency variables included in this model are 1) barriers to participation, 2) requirements to use resources, and 3) access to information (Table 25). The

overall model was found to be significant ($F = 8.285$, $p < 0.001$). The adjusted R^2 for the model was 0.230 which means the model accounts for 23.0% of the variance in the well-being outcomes scores.

Table 25

Summary of Regression Model with Agency Variables

Agency Variables	Standardized Regression Coefficient
Barriers to participation	0.014
Requirements to use farming resources	0.049**
Access to information	0.047***
R^2 Adjusted	0.230
F value	8.285***

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

In the model, the variables requirements to use resources and access to information were found to be associated with well-being outcomes. Requirements to use resources had a regression coefficient of 0.049 ($p < 0.01$) which means that for every unit increase in the requirements to use farming resources, the well-being outcomes are reduced by 0.049 units. In other words, as the requirements for using the farming resources increases by one, the likelihood that well-being outcomes will occur increases by 1.62 percent. Access to information has a regression coefficient of 0.047 ($p < 0.001$) which means that for every unit increase in information, the well-being outcomes are increased by 0.047 units. In other words, as the participants gain access to one more information channel, the likelihood that well-being outcomes will occur increases by 1.55 percent.

Model 5: Trust and reciprocity variables. Model 5 explores whether or not trust and reciprocity variables are associated with well-being outcomes. The trust and reciprocity variables included in this model are 1) attendance, 2) program norms, 3) trust/reciprocity within the program, and 4) willingness to ask for guidance (Table 26). The overall model was *not* found to

be significant ($F = 2.310$, $p > 0.05$) which means that none of the variables were associated with the well-being outcomes.

Table 26

Summary of Regression Model with Trust and Reciprocity Variables

Trust and Reciprocity Variables	Standardized Regression Coefficient
Attendance	0.068
Program norms	0.006
Trust/reciprocity	0.028
Willingness to ask for guidance	0.007
R ² Adjusted	0.066
F value	2.310

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

Model 6: The additive model. Model 6 explores whether or not all of the independent variables are associated with well-being outcomes (Table 27). The overall model was found to be significant ($F = 4.606$, $p < 0.01$). The adjusted R² for the model was 0.643 which means the model accounts for 64.3% of the variance in the well-being outcomes scores.

Table 27

Summary of Additive Regression Model

Socio-demographic Variables	Standardized Regression Coefficient
Age	-0.160*
Gender (1 = female)	-0.139
Income	-0.013
Time in program	0.231*
Technical training	-0.002
Access to resources	0.025
Interaction with outside organizations	0.022*
Interaction within program	-0.014
Barriers to participation	0.005
Requirements to use resources	-0.027
Access to information	0.022
Attendance	0.010
Program norms	0.043
Trust/reciprocity	0.061
Willingness to ask for guidance	-0.015
R ² Adjusted	0.643
F value	4.606**

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

In the model, the variables age, time in Program, and interaction with outside organizations were found to be associated with well-being outcomes. Age had a regression coefficient of -0.160 ($p < 0.05$) which means for every unit increase in age, the well-being outcomes are reduced by 0.160 units. In other words, as the age of the participant increases by 5 years, the likelihood that well-being outcomes will occur decreases by 5.28 percent. Time in program had a regression coefficient of 0.231 ($p < 0.05$) which means for every unit increase in time in program, the well-being outcomes are increased by 0.231 units. In other words, for every two years the participants are involved in the program, the likelihood that well-being outcomes will occur increases by 7.62 percent. Interaction with outside organizations has a regression coefficient of 0.022 ($p < 0.05$) which means that for every unit increase in interaction with outside organizations, the well-being outcomes are increased by 0.022 units. In other words, as the participants interact with one more outside organization, the likelihood that well-being outcomes will occur increases by 0.73 percent.

Reduced model. The reduced model included the independent variables that were associated with well-being outcomes in the previous models (Table 28). The variables added to this model included: age of participant, time in program, access to resources, interaction with outside organizations, requirement to use resources, and access to information. The overall model was found to be significant ($F = 7.389$, $p < 0.001$). The adjusted R^2 for the model was 0.390 which means the model accounts for 39.0% of the variance in the well-being outcomes scores.

Table 28

Summary of Reduced Regression Model

Socio-demographic Variables	Standardized Regression Coefficient
Age of participant	-0.021
Time in program	0.142*
Access to resources	0.007
Interaction with outside organizations	0.016*
Requirements to use resources	0.020
Access to information	0.041***
R ² Adjusted	0.390
F value	7.389***

* Significant at the 0.05 level. ** Significant at the 0.01 level. ***Significant at the 0.001 level.

In the model, time in program, interaction with outside organizations, and access to information were found to be associated with well-being outcomes. Time in program had a regression coefficient of 0.142 ($p < 0.05$) which means for every unit increase in time, the well-being outcomes increased by 0.142 units. In other words, as the time the participants spend in the program increases by two years, the likelihood that well-being outcomes will occur increases by 4.69 percent. Interaction with outside organizations had a regression coefficient of 0.016 ($p < 0.05$) which means for every unit increase in the interaction with outside organizations, the well-being outcomes are increased by 0.016 units. In other words, as the participants interact with one more outside organization the likelihood that well-being outcomes will occur increases by 0.53 percent. Access to information had a regression coefficient of 0.041 ($p < 0.001$) which means that for every unit increase in access to information, well-being outcomes are increased by 0.041 units. In other words, as the participants gain access to one more information channel the likelihood that well-being outcomes will occur increases by 1.35 percent.

In summary, regression models were calculated to determine whether or not the social capital variables were associated with well-being outcomes. The control variable of time in

program was found to be positively associated with well-being outcomes. In addition, interaction with outside organizations and access to information were also found to be positively associated with well-being outcomes.

Case study results

The researcher also analyzed the case study transcripts to determine which social capital factors were associated with well-being outcomes. The transcripts that were analyzed included interviews and focus groups with three groups of individuals: program participants, agricultural educators, and community partners. The researcher asked the participants what types of well-being outcomes were generated through the immigrant farming programs. The researcher identified themes among passages within the transcript. Table 29 provides a lexicon of the words the researcher used to identify the themes. Table 30 offers the themes identified by the researcher.

Table 29

Lexicon of Words Associated with Well-Being Outcome Themes

Themes	Associated Words
New source of supplemental income	Money, generate funds/income, extra/additional money, extra/additional/supplemental income, money per hour
Provide access to inexpensive, healthy food to the community	Neighborhood-friendly prices, relatively inexpensive food
Increased feeling of self-confidence	Feeling of producing, self-confidence, sense of independence, pride, confidence
Increased level of social cohesion in immigrant and non-immigrant communities	Connect/connection to broader community
Increased sales at farmers market and local restaurants	Product sold at market/local restaurants
Increased social interaction with other farmers and the community	Interact/interaction, networking, building relationships
Return to farming heritage	Carrying piece of their country, traditional work, work they know
Improved English language skills	Pick up English, speak more English
Provide access to inexpensive, healthy food to immigrant farmers	Familiar type of food, food they are used to
Increased quantity of agricultural products sold	Selling/sold product
Save money on buying food	Save money at supermarket

Improved integration into U.S. society	Comfortable meeting American people, integration process, feel part of the community
Work in healthy environment	Work in clean environment, healthy work
Increased physical activity	Exercise, work makes them strong
Farmers engage in continuing education	Every day learning

The most common well-being outcome mentioned by the participants was that farming provided a new source of supplemental income to the immigrant farmers. Henry, a Liberian farmer who attended the Midwestern program, explained that the program allowed him and his business partners to improve their production practices which resulted in additional income. He stated, “Every year we’ve improved. We’ve made more sales. That’s the bottom line.” Michael, a Burundian farmer involved in the Southern program, stated that farming is “an activity that helps us generate income.”

Table 30

Well-Being Outcomes of Immigrant Farming Programs from Case Studies

Outcomes	Number of Passages ^a
New source of supplemental income	8
Provide access to inexpensive, healthy food to the community	4
Increased feeling of self-confidence	4
Increased level of social cohesion in immigrant and non-immigrant communities	4
Increased sales at farmers market and local restaurants	3
Increased social interaction with other farmers and the community	3
Return to farming heritage	3
Improved English language skills	2
Provide access to inexpensive, healthy food to immigrant farmers	1
Increased quantity of agricultural products sold	1
Save money on buying food	1
Improved integration into U.S. society	1
Work in healthy environment	1
Increased physical activity	1
Farmers engage in continuing education	1

^a Passages are defined as a paragraph with one or more sentences which focus on a single thought or topic.

Another well-being outcome of the immigrant farming programs was the surrounding immigrant communities gained access to a new source of inexpensive, healthy food. Participants stated that the immigrant program participants primarily sold their crops at local farmers markets. Participants stated that the immigrant farmers sold American crops such as tomatoes and cucumbers, as well as African crops such as a green known as amarantos. Burundian farmers in the Southern program explained when they sold amarantos at the farmers market they had immigrant customers from world regions including Jamaica, Latin America, India, and China.

Carl, a leader of the Burundian community, stated that purchasing African food items can be difficult for immigrants because of their limited incomes. He explained African “food items are really expensive so with limited income it has been really almost impossible for them (immigrants) to get access to those foods on a regular rhythm or in a regular frequency.” He stated that one reason the Burundian community voted to start a farming program was to “easily get access to that food by trying to see if they can grow some of them.” Charity is a member of the Burundian community who has become a regular customer of the Burundian farmers at the local farmers market. She explained through a translator why she is a customer of the Burundian farmers, “They (Burundian customers) come here because this market provides products that are really fresh and so the products are not altered by refrigerators or any other storage means...the products that are bought here are relatively inexpensive.”

Another well-being outcome generated by immigrant farming programs is an increase in the self-confidence of the immigrant program participants. Liberian farmer Henry explained, “One of the benefits is the self-confidence that it gives you that you came here with potential, with skills that you could use. It gives you that sense of independence.” His statements were echoed by Phillip, the program coordinator of the Southern program, who explained:

The increase in confidence has been one of the things that I noticed even as they come to the farmers market and open up with limited communication skills they are able to basically talk to other people in the farmers market. That increased their confidence also and so it is actually participating and contributing in the integration process where they feel part of the community now because they have a plot here, a space at the farmers market.

Mary, an agricultural educator involved in the Midwestern program, agreed with Phillip's statements. She explained that for the immigrant farmers "it is pride in doing something for themselves and (generating) a food source for themselves."

The well-being outcomes generated through immigrant farming programs are diverse. They include economic outcomes such as increases to the supplemental income of the immigrant farmer participants. They also include health-related outcomes such as providing local immigrant communities with additional sources of healthy, inexpensive food. Many immigrant farmers involved in the program have also experienced increases to self-confidence through their involvement with the immigrant farming programs.

The researcher then asked interview participants how different social capital factors facilitated or inhibited these well-being outcomes. Table 31 provides a lexicon of the words the researcher used to identify themes. Table 32 provides a list of themes emerged through those discussions. A discussion will now be offered of the themes that emerged concerning social capital factors that were associated with well-being outcomes.

Table 31

Lexicon of Words Associated with Social Capital Construct Themes

Concepts and Themes	Associated Words
Concept 1: Embedded resources	
1. Training on selling at farmers market	Learn to interact at market, learn to sell at market
2. Gaining access to farmland	Gain/get access to land/farmland
3. Peer learning with immigrant farmers outside of state	Learning from fellow immigrants, Burundians
4. Training on low input farming practices	Low-input farming, low cost farming
5. Training on regulations to sell agricultural products	Regulations, restrictions, laws
6. Training on using farm equipment	Train to use machinery, tools, equipment
7. Access to seeds	Gave them seeds
8. Access to farming tools	Use machinery, equipment, tiller, tractor
9. Maintenance of farmland	Maintaining sites, farm, farmland
10. Training on direct marketing to local restaurants	Sell to local restaurants
11. Getting access to liability insurance	Gave them liability insurance, paid for liability insurance
12. Gaining access to farming materials	Gave them agribond fabric
Concept 2: Social ties and networks	
1. Increased interaction with farmers outside of program	Connect/connection/interact/talk to farmers
2. Increased interaction with immigrants of same ethnicity in the program	Meet and greet, talk, interact, interaction, teamwork, work as family
3. Interaction with customers at farmers market	Talk, interact, meet customers
4. Interaction with instructors restricted by language and cultural barriers	Difficult/challenging to communicate, talk, understand
5. Increased interaction with immigrants of different ethnicity in the program	Interaction, interact, connect, relate
6. Interacting more with resettlement agency members	Interaction, partnership, work together
7. Interaction program staff working on farm site	Work with them
8. Interaction with American farmer participants	Interact, talk to each other, see each other
9. Interacting more with church members	Teaching, working, interact/interacting
10. Interacting more with members of national organizations	Teaching, interact, interaction, involved
Concept 3: Agency (barriers and facilitators)	
1. Limitation: Immigrant farmers' limited English proficiency limits access to information	Difficulty filtering/relaying information, hard to understand, confusing
2. Facilitator: Peer learning helps information transfer flow better	Peer to peer learning, pass on information, encourage other immigrants
3. Facilitator: Individuals working as cultural bridges increase the flow of information	Someone with same culture, understand culture, same background
4. Limitation: Cultural differences (farmers/instructors) makes info transfer difficult	Challenging to teach, hard to translate, difficult to filter information
5. Facilitator: Training sessions modified to meet needs of immigrant farmers	Added visual aids, simple text, taught less content
6. Limitation: Cultural differences among immigrant groups in program	Different cultures, personalities, background differences
7. Facilitator: Translators are critical to making materials understandable	Need translators, translators are important, translators help to filter information
8. Facilitator: No requirements for using resources	Everybody can use the farm
9. Limitation: Farmers' education attainment limits ability to access information	Limited educational level

Concept 4: Trust and reciprocity

- | | |
|--|---|
| 1. Attendance limited by need of immigrant farmers to find a full-time job | Finding a job, job conflicts |
| 2. Immigrant farmers need to trust motives of American instructors | Understand why, expect, expectations |
| 3. Immigrant farmers are comfortable asking for resources | Ask for stuff, seeds, farming tools |
| 4. Trust between immigrant farmers and American instructors is built over time | Build relationship, become friends, better over time |
| 5. American instructors can be overwhelmed by continuous requests by immigrant farmers | Asking for stuff bothers me, my husband |
| 6. Mutual learning between American instructors and immigrant farmers | We share, teach each other, learn from each other |
| 7. Immigrant farmers do not want to disappoint American instructors | Don't want to let us down, nervous about disappointing |
| 8. Immigrant farmers sometimes reluctant to share info with American instructors | Don't want to talk about their situation, farm plans, goals |
| 9. Attendance limited by lack of childcare | Hard to get someone to watch children |
| 10. Attendance limited by lack of transportation | Inadequate transportation, one van |

Concept 5: Constraints to social capital development

- | | |
|--|--|
| 1. Farmer constraint: Reluctance to embrace American-style farming | Fail to embrace American culture, they live their lives differently, laid back culture |
| 2. Program constraint: Limited funding for staff | Limited funded staff, limited grant funding |
| 3. Farmer constraint: Hard to access farmland | Getting access to land |
| 4. Program constraint: Limited ability to translate materials | Hard to professionally translate, challenging to translate |
| 5. Farmer constraint: Hard to get access to farming equipment | Hurdle/challenge to getting tractor, seeds, access to land, manual tools |
| 6. Farmer constraint: Limited education | Limitation of educational level |
| 7. Farmer constraint: Hard to get access to technical training | Training to use farm machinery, tools |
| 8. Farmer constraint: Transportation | Inadequate transportation |
-

Concept 1: Embedded resources. Participants were asked which of the embedded resources were the most instrumental in the immigrant farmers being successful in the immigrant farming programs. The participants stated that technical training in selling at farmers markets was the most important resource provided to immigrant farmer participants. Many of the immigrant program participants explained that they had experience growing food in their homeland and many of those skills transferred to the U.S. They stated that the skills they had in selling at the market did not translate because markets in the U.S. were very different than markets in their homelands. Jill, a Liberian farmer, explained:

The biggest difference is order. Everything here (in the U.S.) is very systematic and it runs smoothly. I can't tell you that it's the same over there (in Africa).

Markets in Africa in general are a little bit chaotic. And here the prices are set.

You know you have to pay \$2 for this produce. You buy your produce and go. In Africa you have to bargain, to negotiate prices.

The participants mentioned that they received a broad range of skills associated with selling at farmers markets including interacting with customers, making change, weighing produce, and understanding regulations involved in selling to the general public.

Table 32

Concepts and Themes Identified through Case Studies

Concepts and Themes	# of Passages ^a
Concept 1: Embedded resources (most valuable)	35
1. Training on selling at farmers market	11
2. Gaining access to farmland	4
3. Peer learning with immigrant farmers outside of state	5
4. Training on low input farming practices	3
5. Training on regulations to sell agricultural products	2
6. Training on using farm equipment	2
7. Access to seeds	2
8. Access to farming tools	2
9. Maintenance of farmland	1
10. Training on direct marketing to local restaurants	1
11. Getting access to liability insurance	1
12. Gaining access to farming materials	1
Concept 2: Social ties and networks	31
1. Increased interaction with farmers outside of program	9
2. Increased interaction with immigrants of same ethnicity in the program	6
3. Interaction with customers at farmers market	5
4. Interaction with instructors restricted by language and cultural barriers	3
5. Increased interaction with immigrants of different ethnicity in the program	2
6. Interacting more with resettlement agency members	2
7. Interaction program staff working on farm site	1
8. Interaction with American farmer participants	1

9. Interacting more with church members	1
10. Interacting more with members of national organizations	1
Concept 3: Agency (barriers and facilitators)	29
1. Limitation: Immigrant farmers' limited English proficiency limits access to information	8
2. Facilitator: Peer to peer learning helps information transfer flow better	6
3. Facilitator: Individuals working as cultural bridges increase the flow of information	4
4. Limitation: Cultural differences (farmers/instructors) makes info transfer difficult	3
5. Facilitator: Training sessions modified to meet needs of immigrant farmers	2
6. Limitation: Cultural differences among immigrant groups in program	1
7. Facilitator: Translators are critical to making materials understandable	1
8. Facilitator: No requirements for using resources	1
9. Limitation: Farmers' education attainment limits ability to access information	
Concept 4: Trust and reciprocity	24
1. Attendance limited by need of immigrant farmers to find a full-time job	5
2. Immigrant farmers need to trust motives of American instructors	5
3. Immigrant farmers are comfortable asking for resources	4
4. Trust between immigrant farmers and American instructors is built over time	3
5. American instructors can be overwhelmed by continuous requests by immigrant farmers	2
6. Mutual learning between American instructors and immigrant farmers	1
7. Immigrant farmers do not want to disappoint American instructors	1
8. Immigrant farmers sometimes reluctant to share info with American instructors	1
9. Attendance limited by lack of childcare	
10. Attendance limited by lack of transportation	
Concept 5: Constraints to social capital development	18
1. Farmer constraint: Reluctance to embrace American-style farming	7
2. Program constraint: Limited funding for staff	2
3. Farmer constraint: Hard to access farmland	2
4. Program constraint: Limited ability to translate materials	2
5. Farmer constraint: Hard to get access to farming equipment	2
6. Farmer constraint: Limited education	1
7. Farmer constraint: Hard to get access to technical training	1
8. Farmer constraint: Transportation	1

^a Passages are defined as a paragraph with one or more sentences which focus on a single thought or topic.

Emily, an agricultural educator in the Midwestern program, stated that some of the liveliest discussions in class on selling at farmers markets were the sessions on American customer preferences.

They (immigrant farmers) said in our community we like crops that are really, really big, where Americans seem to like everything in miniature - small greens, small squash, like everything has to be tiny. They let their greens grow to whatever, three feet tall, and they were like Americans wanted things that were like this big (very small).

Karen, a community partner who provided some of the training for the Midwestern program, agreed with Emily. She stated teaching immigrant farmers about farmers markets was a complicated task involving a wide range of skills. She explained, “We show them how to do it, how to engage with the people and to sell the vegetables and how to explain the vegetable.”

William, the leader of a group of Burundian farmers in Seattle, conducted market training for the farmers in the Southern program. He conducted much of the training for the Burundians in the Southern program. William explained that they focused the training on “recognizing productive soil, know(ing) the crops that American people like the most, how to market their product and so forth.” William explained that the Burundian farmers were selling much more than simply agricultural products. He said, “We sell the story and not the product.” He stated that to sell the story of the Africa immigrants and their struggle to farm in the U.S. requires the development of marketing materials such as banners and flyers.

Concept 2: Social ties and networks. The researcher also asked the participants to describe the most beneficial types of relationships and networks that were created through the program. She also asked the participants about relationships built within the program and relationships built outside of the program. The participants stated that the primary relationships built inside the program were among immigrant farmers of the same ethnicity. Carl, a leader in the Burundian community, stated that farming as a collective group is a new activity for the Burundian farmers in the United States. Carl explained:

Back in Africa you do farming individually. You don't find people farming together as a group so this teamwork or group work is another factor that makes it easier and also the support. When they are trying to farm they have encouragement from the (Burundian) community.

Michael, a Burundian farmer in the Southern program, explained that while farming may not be a collective activity in Africa supporting one another is a part of the culture. He said, "It is a trait of our culture helping together. A person has a meaning when he is acting as a group. As an individual he is not very meaningful." Some of the participants stated that working together on the farming project allowed the African immigrant farmers to continue to build social cohesion within the African community while they were in the United States. Carl mentioned that often in the U.S. immigrants are engaged in employment that isolates them from the rest of their community. He explained that farming was one of the few jobs that allowed the Burundian community to remain tightly-knit together.

Participants said that the most beneficial relationships built outside of the program were those relationships between the immigrant farmers and other farmers. Immigrant farmers participating in the Midwestern program were connected to other farmers through a series of field trips to local farms. Molly, the program coordinator of the Midwestern program, explained that the relationships that were started between the immigrant farmers and other farmers were strengthened over time. She said:

I think just seeing the refugees recognized him (a farmer they met during a field trip) and being able to talk at the market was very interesting, at least for me, just because I think that they were able to see his market stand and also think back to the rural farm, so I think that's an interesting connection that they made.

Program coordinator Phillip agreed. He stated that the Burundian farmers were building relationships with other farmers at the farmers markets who provided guidance with respect to growing techniques and pest control.

In addition to connecting with American farmers, some of the immigrant farmers in the Southern program also came in contact with Burundian farmers outside of the state. As previously mentioned a group of Burundian farmers from Seattle came to the Southern program and taught the Burundian farmers about setting up a successful farming program. Phillip, the program coordinator of the Southern program, hopes the mutual learning between Burundians living across the United States will continue. He said, "We want to establish a community that the ones who are successful can teach the other ones and then mutually support each other like that."

Concept 3: Agency. The researcher asked the participants about issues affecting the agency of the immigrant farmers, or their ability to gain access to information and

make decisions based on that information. The researcher asked about the program characteristics that limit or facilitate the immigrant farmers' agency. The participants stated the primary limitation to agency was the immigrant farmers' lack of English proficiency. Not being able to understand or communicate in English restricted the farmers' ability to access and utilize information they were receiving from the agricultural educators and community partners. Emily, an agricultural educator involved in the Midwestern program, stated that the immigrant farmers' lack of English proficiency made delivering information to the farmers complicated. In addition, she said that the Midwest includes immigrants who come from different regions which only added to the complexity of providing accessible information to participants. She said, "We've had three or four different language groups that participate in these programs at the same time." Emily explained that trying to conduct training sessions with multiple translators often restricted the amount of material they could teach in class. Emily stated that trying to translate course materials into other languages was also difficult.

We tried to get everything translated and we wanted to be able to produce these worksheets that were in three different language sets every time, and that became incredibly challenging for a lot of reason. We relied very heavily on (resettlement agency), and rather than having these professionally translated, they were usually working with some folks who were native speakers of that language and had pretty high English skills and they were translating it.

While agency was restricted by the lack of English skills of the immigrant farmers, agency was facilitated by the peer learning. Participants explained that

immigrant farmers could relay information to other immigrant farmers in a culturally-appropriate way that made the information more readily accessible. In the Southern program, peer learning took place through the exchange program between the Seattle Burundian farmers and the Burundian farmers in the Southern program. Phillip, the program coordinator of the Southern program, explained that the benefits of the exchange, “It was very seamless and very good to learn from the peers rather than having somebody for instance me who didn’t have the experience.” Likewise Karen, a community partner of the Midwestern program, stated that there were benefits in using peer mentors to teach immigrants farmers. She explained, “What we are trying to do is peer to peer (learning) because they understand their background. They understand the situation. They know how to interpret to their community.” Participants mentioned that peer learning was able to overcome the cultural and language barriers that occurred when American native instructors taught immigrant farmer participants.

Concept 4: Trust and reciprocity. The researcher also asked the participants about the development of trust and reciprocity within the immigrant farming programs. Two primary themes emerged through the discussions, 1) the attendance of the immigrant farmers was limited by their need to find full-time off-farm employment, and 2) the immigrant farmers needed to trust the motives of the American native instructors. A key component to developing trust among people is for the people to have frequent interaction with each other (Coleman, 1988). The participants mentioned that many immigrant farmers were unable to attend program activities on a regular basis. They explained that many immigrant farmers were in the process of finding full-time

employment. If the immigrant farmers found a full-time off-farm job they often stopped attending the program activities. Emily, an agricultural educator, stated:

One thing that's been challenging is the transient nature of the folks that we work with. I think one of the biggest hurdles for them is that they're new to this country and their number one priority is to find a job.

She explained that often immigrant participants would participate in the program for a few weeks and then drop out of the program once they found a full-time position. She said, "We've committed to putting in this time, but they might not necessarily be able to because they find a job, and then we lose them." Molly, the program coordinator of the Midwestern program, stated that it's important for agricultural educators to be understanding when working with immigrant farmers. She said, "Understanding that people have to do what they have to do and people who are here that day are here and we're just going to work with this group, so I think just being really flexible and accommodating."

Another theme mentioned by the interview participants concerning the development of trust and reciprocity within the program is the importance of the immigrant farmers trusting the motivation of the American instructors. Agricultural educators mentioned that the immigrant farmers were often wary of their American instructors at first. Nora, an agricultural educator working with the Southern program, said that the Burundians she was working with would question why she would donate her land to them to farm. She said:

It wasn't a language barrier. I think it was a faith kind of a thing. 'Why would some crazy white woman want to just give us property? What are we going to have to pay? What are we going to have to do?'

Nora explained that over the course of two years the Burundian farmers slowly grew to trust her. She explained, "They're seeing that it's working. They're seeing that it (the farm) is close by. They're seeing that the crazy woman won't interfere with them."

Agricultural educators agreed with Nora and stated that trust was developed over time. They also mentioned that trust could be enhanced by mutual learning, when the instructors taught the immigrant farmers and the immigrants taught the instructors.

Concept 6: Constraints to social capital development. The researcher also asked the participants what they believed were the biggest constraints to social capital development within the immigrant farming programs. The constraints described by the participants differed depending on the role of the individual in the program. The agricultural educators identified the primary constraint as the immigrant farmers' reluctance to embrace American-style farming. The immigrant program participants, on the other hand, identified the primary constraint as the lack of access to embedded resources such as tractors and technical training.

The agricultural educators in the Southern program stated that the immigrant farmers were limited by their unwillingness to engage in American-style farming. They pointed to the African farmers' rejection of the idea of establishing a farm plan, and sowing seeds earlier in the season. Agricultural educator Mary said, "I talk till I'm blue in the face. I set up schedules. I have timetables of when seed will grow best and they look

at me like this is way too structured and why are you doing all this.” Agricultural educator Nora shared similar experiences with Mary. Nora explained:

I'm badgering him (the Burundian farmer) in February, 'Where are your lists? What are your plans? These are my plans. I've got them drawn up.' And he laughs because I've got mine all on a computer program...And he looks at my plans and just thinks I'm crazy.

Mary explained that the immigrant farmers are often on “African time.” She explained that the immigrant farmers often come hours late to meetings or never show up at all. She said that she has scheduled training sessions with the farmers and they have failed to show up. She noted one incident that occurred with the immigrant farmers when community partners paid to have the farmland plowed. The Burundian farmers failed to show up to plant the crops in the subsequent weeks and the farmland became overgrown. The Burundians went back to the community partners and wanted the community partners to re-plow the farmland. The community partners refused.

Lynn, a farmers market manager who partners with the Southern program, stated that it's been difficult for the Burundian farmers to stay on a regular farm schedule. She said:

It's been a struggle I think for them to get all the components in place. The idea of you've got to clear the field and then before the weeds have a chance to grow back again you have to plant and then you have to be able to irrigate during the key growing months. So each year progressively they've sort of gotten more of the pieces together.

Lynn stated that farming involves so many components from farm planning to pest control to irrigation. She explained that it often takes a few seasons for farmers to get into a rhythm of farming and for immigrant farmers that time to establish a farming rhythm can take even longer.

Integrating the quantitative and qualitative results

The researcher found that the quantitative and qualitative findings complimented each other in some areas and contrasted in other areas. The well-being outcomes identified through the survey were different to the well-being outcomes identified through the case study. Through the survey, no single well-being outcome was found to be more frequently occurring than the other well-being outcomes. Through the case study, a number of well-being outcomes were found to be more frequently occurring, including new sources of supplemental income, access to source of inexpensive, healthy food for local community, increased self-confidence, and increased social cohesion.

The social capital factors that were positively associated with well-being outcomes identified through the survey were 1) time in program, interaction with outside organizations, and access to information. The social capital factors identified through the case studies as facilitators of well-being outcomes were 1) training on selling at farmers market, 2) increased interaction with farmers outside of program, and 3) peer learning. The social capital factors identified as inhibitors of well-being outcomes were 1) limited English language proficiency, and 2) the need to work off-farm jobs.

RESEARCH QUESTION 3: PROGRAMS WITH AND WITHOUT AFRICAN IMMIGRANTS

The researcher utilized the survey data to answer research question three. The researcher conducted ANOVA tests to compare the social capital development in immigrant farming programs with African immigrant participants to programs with participants from other world regions. The results of the ANOVA tests are described in Table 33. When reviewing the results of the multiple regression models it is important to keep in mind that the variables that measured embedded resources, social ties and networks, trust and reciprocity, and well-being outcomes were found to be reliable (Cronbach's $\alpha \geq 0.8$). The variables that measured agency were found to be questionable in terms of their reliability (Cronbach's $\alpha = 0.6$).

With respect to well-being outcomes, programs with African immigrants were not statistically different to programs with participants from other world regions ($F=0.408$, $p > 0.05$). The mean of well-being outcomes was higher for programs with African immigrants (mean = 82.21) compared to programs with participants from other world regions (mean = 80.07). Concerning embedded resources, there were no statistical differences in technical training ($F = 2.300$, $p > 0.05$) or access to resources ($F = 3.167$, $p > 0.05$). For both variables, the means for the programs with African participants were higher than the means for the programs without African immigrants. With respect to social ties and networks, no statistical difference was found between the two groups with respect to interaction with outside organizations ($F = 1.054$, $p > 0.05$) or interaction within the program ($F = 1.947$, $p > 0.05$). The means for both variables were higher for programs with African immigrants than programs without African immigrants.

Table 33

Comparison of Immigrant Programs with and without African Participants

Social Capital Factors	Participants in program	N	Mean	Std. Deviation	F
Well-being outcomes	No African participants	44	80.07	14.15	0.408
	African participants	39	82.21	16.34	
Embedded resources					
Technical Training	No African participants	53	54.30	20.31	2.300
	African participants	40	60.35	17.21	
Access to resources	No African participants	49	6.39	3.77	3.167
	African participants	39	7.72	3.09	
Social ties and networks					
Interaction with outside orgs	No African participants	50	20.66	8.52	1.054
	African participants	40	22.38	6.99	
Interaction within program	No African participants	49	21.16	8.02	1.947
	African participants	40	23.33	6.22	
Agency					
Access to information	No African participants	43	24.60	4.71	0.737
	African participants	40	23.75	4.33	
Requirements to use resources	No African participants	52	2.79	2.64	7.495**
	African participants	35	4.29	2.28	
Barriers to participation	No African participants	44	3.64	2.092	0.442
	African participants	38	3.92	1.73	
Trust and reciprocity					
Attendance	No African participants	45	2.87	0.82	1.413
	African participants	40	3.08	0.80	
Program norms	No African participants	45	16.33	3.13	0.014
	African participants	39	16.41	2.72	
Trust/reciprocity in program	No African participants	43	24.07	3.11	0.548
	African participants	38	24.68	4.32	
Willingness to ask for guidance	No African participants	46	18.43	7.56	0.483
	African participants	38	19.55	7.06	

** Significance level at $p = 0.01$.

In terms of agency, no statistical difference was found between the two groups for access to information ($F = 0.737$, $p > 0.05$) or barriers to participation ($F = 0.442$, $p > 0.05$). With access to information, the mean for programs with African immigrants was lower than the mean for

programs without African immigrants. With barriers to participation, the mean for programs with African immigrants was higher than for programs without African immigrants.

The two groups of programs were statistically different concerning one agency variable, requirements to use resources ($F = 7.495$, $p < 0.001$). The mean for programs with African immigrants was higher (mean = 4.29) than the mean for programs without African immigrants (mean = 2.79). In other words, programs with African immigrants tended to have more requirements than programs without African immigrants.

In terms of the variables measuring trust and reciprocity, no statistical difference was found for the programs with African immigrants and the programs without African immigrants. Attendance was not significantly different between the groups ($F = 1.413$, $p > 0.05$) but the mean of programs with African immigrants was higher than the mean for programs without African immigrants. Program norms was also not significantly different between the groups ($F = 0.014$, $p > 0.05$) but the mean of programs with African immigrants was higher than the mean for programs without African immigrants. Trust/reciprocity in the program was not significantly different between the groups ($F = 0.548$, $p > 0.05$) but the mean for the programs with African immigrants was higher than the mean for programs without African immigrants. And finally, willingness to ask for guidance was not significantly different between the groups ($F = 0.483$, $p > 0.05$) but the mean for programs with African immigrants was higher than the mean for programs without African immigrants.

In summary, the only variable in which programs with African immigrants was statistically different than programs with participants from other world regions was requirements to use resources. Programs with African immigrants had a higher mean for the variable than programs with participants from other world regions. In other words, programs with African

immigrants tended to have more requirements for the immigrant participants to use farming resources compared to programs without participants from other world regions.

RESEARCH QUESTION 4: GENDER AND SOCIAL CAPITAL DEVELOPMENT

To address research question four, the researcher explored the data collected through the case study. The researcher asked participants to explain the differences between African men and women in terms of farming. She asked them to describe how gender roles were determined with respect to farming in Africa and how those roles changed or remained constant when the immigrants came to the United States.

The researcher asked the participants the way agriculture and farming were viewed in Africa, and the roles of men and women concerning farming. A common theme among the participants was in Africa everyone cultivated the land in one form or another. Liberian farmer Henry said:

In my country basically everybody is a farmer. Every yard has a backyard garden and everyone takes classes in gardening. As a kid I used to go farming with people, assist them with all kinds of farming activities so I was pretty comfortable gardening.

Carl, a leader in the Burundian community, echoed Henry's statements. He said, "The main activity for life in Burundi is farming, agriculture and as you may guess these Burundians are agriculturalists." The participants explained that there were different types of farming in Africa, farming as a hobby and subsistence farming which involved selling some food at market.

When asked about the roles of men and women concerning farming, the participants explained that the primary subsistence farmers in Africa were women. Burundian community

leader Phillip stated, “In Burundi even up to today 90% of the population lives off the ground meaning they are doing subsistence agriculture and most of the time, not all of the time, women are the ones who do the farming.” Carl, also a leader in the Burundian community, agreed with Phillip. He explained that in Burundian cities, men often have off-farm employment and women focus on agriculture. In the rural areas, he explained, there are less off-farm jobs and in those areas men and women farm together. Burundian farmer Danielle said through a translator:

Farming, cultivation was their (women) central job and that was their specific particular job. So every morning they woke up with hoes on the shoulders heading to the farm and cultivating the entire day or whatever time they have to spend but that was their job.

A group of female Burundian farmers were asked about the role of women in farming in Africa. They said that women in Africa had to be productive farmers because strong farming skills were required to find good husbands. Burundian farmer Merriam said, “If the girl doesn’t like working the land, cultivation, she has very limited chances to get a husband or a boyfriend so it’s a very essential and very meaningful activity.” Merriam went on to explain:

In Africa if for instance (Samson) was trying to look for (Danielle) as a future spouse. They’d investigate her seriously and she would not know that she is being investigated. They will investigate and find out if she really does, if she correctly and adequately cultivates the land. If the investigation ends up revealing that she doesn’t farm, she doesn’t cultivate their friendship is canceled and she won’t be taken into marriage.

In addition to being farmers, participants mentioned that women in Africa are strong businessmen who often engage in cottage industry. Liberian farmer Henry said:

You see self sufficiency is actually what we rely on in Liberia. The women are the strong ones. They are the traders, yes, the women. Even when we were refugees and they were giving out micro-credit. They would rather give it to the women.

The idea that women are hard workers was echoed by Carl, who provided additional insight into the work ethic of men and women in Africa. He explained, “Women do work harder so men may work maybe half of a day and the other half would be involved in some type of leisure, specifically going to drink beer. They (men) do that. It’s unfair.”

The researcher then asked participants how African immigrants viewed agriculture when they entered the United States. Many participants said that African immigrants were drawn into farming because it had been such a mainstay in their homeland. Burundian and program coordinator Phillip said, “When they got here (U.S.) they got interested in farming because it’s something they have already accustomed to. They know they have the skills.” Burundian community leader Carl agreed. He explained, “These Burundians are agriculturalists so when they came here they really did miss that big piece of their culture and of their lifestyle.”

Not all of the African immigrants had such a positive view of farming when they arrived in the U.S. Liberian farmer Henry explained that some African farmers have the belief that farming is “undignified” work and not suitable employment for them when they came to the United States. He explained that some of the African immigrants told him “I did not come to America to do farming.”

With respect to the roles of men and women in agriculture, participants said those gender roles did not seem to come into play in the United States. Carl said, “They are all farming so this idea of having women doing farming on their own is really out of mind, 100 percent out of mind, yes.” Participants explained that much of the interest in farming for the African immigrants in

the Southern program came after the first group of African farmers had a successful harvest. Program coordinator Phillip stated that once the rest of the Burundian community shared in the bounty of the first harvest, interest in joining the program spread throughout the community.

Participants mentioned that between the African men and women in the U.S. the men were becoming the leaders in farming. Participants attributed the shift from African women being the leaders in agriculture to the African men becoming the leaders in agriculture to the fact that African men had stronger English language skills compared to African women. Agricultural educator Mary said:

I thought for sure the ladies would step up and I don't know this for sure but I think it's more the men that have been. Their culture is very male dominated. The women are very submissive. The women have been the slowest to learn English. This idea was echoed by Lynn, the farmers market manager working with the Burundian farmers in the Southern program. She said, "The women are very much, they keep to themselves and so I wouldn't say they are doing a great deal of sort of socializing with the other vendors."

Participants stated that agriculture was a good source of employment for African immigrant women living in the United States. Program coordinator Phillip stated that many African women have little experience working outside of their home when they come to the U.S. In addition, he said that this lack of experience partnered with limited English language skills have made it difficult for many African women to find employment in the U.S. He said, "The labor market is not as encouraging for women who don't necessarily have all the skills sets, the workforce skills that are required in the workforce to be able to compete, in the labor market." Liberian farmer Henry said that the jobs African women found in the U.S. were often based on

manual labor and could be extremely taxing. He stated, “The majority of them (African women) right now are doing hospitality jobs...Some are not used to this kind of work. Some of the older women find it really, really hard work, cleaning jobs, things like this.”

Participants argued that farming could provide African women with another source of employment that is better suited to their skills and previous work experience in Africa. Henry explained, “When they earn their money that way (farming) they have that sense of independence, that self-reliance and that is what would be regrettable if the refugees, the refugee women here should lose that.” Phillip said that the women in his program who have returned to farming have acquired not only supplemental income but also a sense of self-reliance. He stated:

For most of these farmers like the women this was the first time they had an income that is part of their own work and that has increased their confidence in themselves as human beings and it’s an empowering experience to know that you have, at least they know that they have the means and the power to change their own lives through what they know how to do which is farming.

The major theme throughout the discussion on African men and women and agriculture was the potential for African women to thrive in farming in the United States. Many participants mentioned that African women had limited English language skills which seemed to restrict their ability to become leaders in agriculture in the U.S. The interview participants argued that the wealth of experience and ingenuity that many African women brought with them from Africa could be harnessed. They explained that African women have the skills and the motivation to be successful farmers in the United States.

CONCLUSION

The researcher analyzed data collected through the quantitative and qualitative research strands to address the four research questions. The researcher conducted statistical tests to determine the reliability of the variables that measured the social capital constructs in this study. The variables measuring the constructs of embedded resources, social ties and networks, trust and reciprocity, and well-being outcomes were found to be reliable at an acceptable level. The variables measuring agency were not found to be reliable at an acceptable level. The survey results pertaining to agency need to be considered in light of the low reliability level of the variables that measured that construct.

Research question one investigated the programmatic characteristics that contributed to the development of social capital among immigrant program participants. In terms of embedded resources, the survey respondents stated that the most frequently taught technical training topic was production techniques for vegetables. With respect to social ties and networks, respondents identified a number of individuals within the program and outside the program with whom the participants interacted. No group of individuals was found to have statistically greater levels of interaction with the participants than any other. In terms of agency, the most frequently cited requirement to use farming resources was a willingness to maintain production. The most frequently cited barrier to attendance for participants was working an off-farm job. In terms of trust and reciprocity, the respondents stated that the individuals that participants most often contacted for guidance were immigrants of the same ethnicity, instructors, and program directors.

Research question two asked how social capital factors contributed to the well-being outcomes accrued by immigrant program participants. With respect to the survey results, none of

the well-being outcomes were more likely to occur statistically compared to any of the other outcomes. A number of well-being outcomes were identified through the case study results. These outcomes included new sources of supplemental income; access to a source of inexpensive, healthy food for the local community; increased self-confidence; and increased social cohesion within immigrant communities.

The results of the survey and the case study were analyzed to determine which social capital factors contributed to these well-being outcomes. The survey results found that three factors had a positive relationship to the likelihood that well-being outcomes would be generated through the programs. These factors included the participants' time in the program, the level of interaction with individuals outside of the program, and the level of access that participants have to information. Through an analysis of the case study results a number of factors which facilitate the generation of well-being outcomes were identified. These factors include training on selling at farmers markets, level of interaction with farmers outside of the program, and level of peer learning. Through analysis of the case study results, the researcher also identified a number of factors that inhibit the likelihood of well-being outcomes being generated. These factors include the participants' limited English language proficiency, and the participants' need to work off-farm jobs.

Research question three investigated how programs with African immigrant participants differed from programs with participants from other world regions. Programs with African immigrant participants differ from programs with participants from other world regions in one area. Programs with African immigrant participants have almost double the number of requirements to use farming resources compared to programs with participants from other world regions.

Research question four asked how gender affects social capital development within immigrant farming programs. Female African immigrant farmers were found to have lower levels of agency compared to male African immigrant farmers. Specifically, African women had restricted access to information because of their limited English language skills compared to African men. In Africa, the roles were reversed. African women were the primary farmers and African men played supportive roles.

Chapter 6

Conclusion and Recommendations

The findings from this study will now be explored in terms of the limitations, a discussion of the results, recommendations for practice, and areas for future research. The discussion of the study limitations will explore how the findings of this study can be applied to other populations and contexts. The discussion of the results will describe the research findings with respect to the four research questions. Recommendations for practice will provide suggestions for practice in terms of developing and implementing immigrant farming programs, and applying social capital theory to agricultural education programs. Finally, the section on future research will explore how the findings from this study could be further investigated in other research studies.

LIMITATIONS OF THE STUDY

The limitations of this study involve the population used in the quantitative research strand, the participants involved in the qualitative research strand, and the cultural interpretation of the findings. The findings from this study represent the attitudes, perceptions, and experiences of the survey respondents. These survey respondents represent 46.1% of the survey population. The survey population consists of 274 agricultural educators that work with immigrant farming programs in the United States. This population includes the agriculture educators that the researcher could identify and may not include all of the individuals working with immigrant farming programs in the United States. Therefore, the survey results do not represent the views of all of the individuals working with immigrant farming programs across the United States.

Likewise, the case study results represent the views of the individuals who agreed to participate in the study from the two immigrant farming programs. The findings represent the attitudes, perceptions, and experiences of the program participants, agricultural educators, and community partners who participated in the interviews and focus groups. Therefore, the case study findings are limited to the individuals who participated in the study and do not represent the views of all individuals associated with the two immigrant farming programs.

In addition, the findings of this study are limited by the cultural interpretation that took place during the data collection and analysis phases. Many of the individuals who were interviewed or participated in the focus groups were not able to communicate with the researcher in English. Interpreters were involved in many of the interviews and focus groups to relay the information from the participants to the researcher. During the translation process, the interpreters filtered the comments of the participants through their cultural lens to the researcher. During the analysis phase, the researcher also filtered the comments of the participants through her cultural lens.

DISCUSSION OF RESULTS

The researcher utilized data collected through an online survey and case study to answer the four research questions. Research question one asked which programmatic characteristics contributed to the development of social capital within the immigrant farming programs. The key programmatic characteristics that contributed to social capital development were technical training on production techniques for vegetables and selling at farmers markets. Other key programmatic characteristics were establishing a requirement for participants to use farming resources based on their willingness to maintain production. Another key programmatic

characteristic that contributed to social capital development was the participants' willingness to ask for guidance from immigrant participants of the same ethnicity, instructors, and program directors.

Many of the characteristics in the program that contributed to social capital development involved facilitating relationships between the immigrant participants and individuals within the program and in the community. For example, training on selling at farmers markets involved teaching immigrant farmers how to interact with members of the community who were customers at the markets. Relationships were built within the program that enabled immigrant participants to feel comfortable enough to ask for guidance from their peers, instructors, and the program directors. A key component of developing these relationships was for the immigrant participants to learn not only about American farming techniques but also about American culture.

The findings from the first research question provide insight into how social capital theory can be applied to immigrant farming programs. Social capital theory argues that membership in social networks provides access to social capital for participants which in turn helps the participants reach their goals (Coleman, 1988). This study found that a number of programmatic characteristics in immigrant farming programs contribute to the development of social capital, including providing access to resources such as technical training and the development of social relationships. In addition, this study found that these programs assisted the participants in meeting a range of goals such as gaining supplemental income; access to healthy, culturally-relevant food; and increased interaction with members of the local community.

Research question two asked which social capital factors were associated with well-being outcomes. The primary well-being outcomes identified through the study were supplemental

income, access to a new source of healthy food, increased self-confidence, and increased social cohesion within immigrant communities. The well-being outcomes accrued through participation in the programs included economic, social, and health-related benefits.

Social capital factors were identified that facilitated and inhibited well-being outcomes. The social capital factors that contributed to well-being outcomes were the participants' time in the program; the level of interaction with individuals outside of the program, especially other farmers; and the level of access that participants had to information. The social capital factors that restricted well-being outcomes were the participants' lack of English language proficiency, and the participants' need to work off-farm jobs.

An underlying theme among the social capital factors that influenced whether or not well-being outcomes were generated was the ability of the immigrant participants to access and utilize information. Having strong English language proficiency allowed immigrant participants to gain information from agricultural educators and build relationships inside and outside of the program with influential community members. Strong English language skills were also critical to immigrant participants being able to successfully interact with customers at farmers markets. A key finding of this study is that understanding and being able to speak English is critical to the success of participants in immigrant farming programs.

The findings associated with research question two also provide insight into social capital theory. Lin (1999) stated that within social networks there are positional variations that inhibit or facilitate social capital development. This study found that English language proficiency is a key positional variation for immigrants that can impact whether or not they are able to develop social capital within immigrant farming programs.

Research question three asked how immigrant farming programs with African immigrant participants differ from programs with participants from other world regions. Programs with African immigrants and programs with participants from other world regions tended to develop social capital in the same way with respect to embedded resources, trust and reciprocity, social ties and networks, and well-being outcomes. In one area the two types of programs differed. The study results found that programs with African immigrant participants tend to have more requirements to use farming resources compared to programs with participants from other world regions.

Further analysis failed to explain this difference between the programs. One possible explanation is that African immigrant participants may have a lower level of English language proficiency compared to immigrant participants from other countries. Perhaps the additional requirements to use farming resources were a way to ensure that African immigrant participants understood and followed the program guidelines concerning the use of the resources.

The results from the third research question also provide insight into social capital theory. Coleman (1998) argued that social networks that include individuals with a shared ethnic heritage often develop social capital in similar ways. The findings from this study support Coleman's argument. Immigrant farming programs with African immigrant participants were found to develop social capital in many of the same ways as programs with participants from other world regions.

Research question four explored how gender influenced the development of social capital within immigrant farming programs. The primary finding was that female African immigrant participants tended to have lower levels of agency compared to male African immigrant participants. This was due to the limited English language proficiency of African women

compared to African men. African women had restricted access to information compared to African men in terms of accessing technical training and interacting with customers at farmers markets. As a result, African immigrant women in the programs had taken supportive roles rather than leadership roles in farming in the United States.

Further analysis found that these gender roles were reversed in Africa. Women were the leaders in farming and men played supportive roles. This finding reiterates the importance of English language skills to be successful in farming. It also provides insight into leadership experiences and skill sets that female African immigrant farmers may bring with them to the United States.

The findings from the fourth research question also provide a greater understanding of social capital theory. Previous studies have found that gender may influence the development of social capital within social networks (Bantilan & Padmaja, 2007). The results from this study support that finding. This study found that female immigrants may be limited in their ability to develop social capital compared to male immigrants. One key factor is English language proficiency. African women had a lower level of English language proficiency compared to African men which restricted their ability to develop social capital in the United States.

RECOMMENDATIONS FOR PRACTICE

A number of recommendations have been derived from the results of this study that can guide practice. These recommendations are geared toward program directors who develop and evaluate immigrant farming programs. These recommendations are also geared toward practitioners interested in incorporating social capital theory into their agricultural education programs.

The first set of recommendations focus on developing and evaluating effective immigrant farming programs. These recommendations include 1) developing social networks, 2) creating train-the-trainer programs, 3) providing stipends to participants, 4) teaching English language skills, and 5) creating leadership opportunities for female immigrant participants. Key to the success of many immigrant participants was the development of relationships within the programs and outside of the programs. Program directors who want to encourage the development of relationships within their programs should keep the number of program participants to 10 or less. Small class sizes provide an opportunity for more interaction between the participants, instructors, and program director. To develop relationships outside of the programs, program directors could organize field trips to farmers markets and restaurants that feature local food. These field trips are an effective way to connect participants with individuals who could help them gain access to new markets.

Another strategy to increase the benefits that are accrued by participants is to develop train-the-trainer programs. These programs would involve recruiting a small number of immigrant farmers who have strong English language skills. These farmers would receive intensive training in agricultural production and selling at markets. These immigrant farmers would then become the instructors in the program and teach the other immigrant farmers. This peer learning program would enhance the immigrant participants' access to information because it would reduce the cultural and language barriers that are often present when native American agricultural educators try to relay information to immigrant participants.

An additional strategy to increase the positive outcomes generated through immigrant farming programs is to provide English language training as part of the immigrant farming program curriculum. English language proficiency was found to be a key indicator of success for

many immigrant participants. It would be useful for immigrant farming programs to include English language training that focuses on farming terminology and language needed to interact with customers in farmers markets.

To increase the level of participation in program activities, stipends could be offered to immigrant participants during their enrollment in the programs. These stipends could off-set any loss of income the participants experience from participating in the program rather than taking full-time off-farm employment. These stipends should continue for at least the two years to ensure that the immigrant participants have enough time to transition into farming full-time.

In addition, program directors should consider creating programs that target female immigrant farmers. This study found that some female immigrant farmers have experience managing their own farms in their homeland. It would be useful to create programs that provide leadership training, as well as technical training for immigrant women.

Key to developing effective immigrant farming programs is conducting thorough program evaluations. Program directors should consider measuring the full range of benefits that are generated through immigrant farming programs. This study found immigrant farming programs generate economic, social, and health-related outcomes. Studies have found that few immigrant farming programs evaluate the social and health-related outcomes of their programs (Hightower & Griffith, 2012). By evaluating the range of benefits that are accrued to participants in their programs, program directors can illustrate the full impacts of their programs.

Program directors should also consider measuring the social network development that occurs through their programs. This study found that social network development is occurring in many immigrant farming programs and that it contributes to the positive outcomes that are

generated through the program. Evaluating social network development provides another way for program directors to measure the impact of their programs.

Recommendations will now be provided to guide agricultural educators in utilizing social capital theory in their programs. Social capital theory provides a way for agricultural educators to conceptualize and measure the social networking that is already occurring in many of their programs. Many agricultural education programs involve bringing in guest speakers and field trips. These are two strategies that encourage the development of social networks. I suggest that agricultural educators use social capital theory to explain the ways these networks are developed, evaluate the development of social capital, and identify the benefits to their program participants. This study includes a survey instrument that measures social capital development in immigrant farming programs. This instrument could be utilized to evaluate social capital development in other types of agricultural education programs.

I would also encourage agricultural educators to use social capital theory to inform their work with immigrant populations. This study provided insight into how social capital development may be developed within agricultural education programs with immigrant participants. Agricultural educators who want to encourage social capital development among immigrant participants should consider the impact English language proficiency has on the level of learning that occurs. Agricultural educators that incorporate English language training into their programs may find that their immigrant participants receive more benefits from their programs.

FUTURE RESEARCH

Future studies could investigate a number of different areas related to immigrant farming programs and social capital theory. Future studies could investigate the role of the sponsoring organizations in the development and implementation of immigrant farming programs. Different sponsoring organizations, such as Cooperative Extension and resettlement agencies, recruit different types of individuals into their programs. These organizations also have different program goals and incorporate different educational strategies. Research could explore how different sponsoring organizations shape the experience and benefits of immigrants participating in their immigrant farming programs.

Research could also investigate differences between urban and rural immigrant farming programs. Studies have found that social capital development occurs differently in urban and rural settings (Hofferth & Iceland, 2011). This study could explore how social networks are developed in immigrant farming programs that are located in urban communities and programs that are located in rural communities.

Finally, future research could also explore strategies for creating long-term, sustainable immigrant farming programs. Many programs rely on grant funding which is time limited. In addition, many of these programs experience high turnover in instructors and program coordinators. Future studies could investigate strategies to increase the sustainability of immigrant farming programs.

CONCLUSION

While there are some limitations to the way the findings of this study can be applied to other populations and contexts, the results of this study can be instrumental in guiding the

practice of individuals working with immigrant farming programs and agricultural educators in general. Recommendations have been offered on strategies to develop and evaluate immigrant farming programs. Recommendations have also been offered on how to utilize the findings of this study to better understand social capital theory with respect to agricultural education. Future research studies that could investigate immigrant farming programs and social capital theory have been explored. For example, future studies could explore the role of sponsoring organizations in immigrant farming programs, urban versus rural immigrant farming programs, and strategies to create sustainable immigrant farming programs.

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Appendix A

Table A

Timeline of Research Phases and Procedures

Date	Research Phase	Procedures
Aug. 2011 – June 2012	Quantitative research protocol development	<ul style="list-style-type: none"> • Survey instrument developed. • Virginia Tech Institutional Review Board (IRB) approved instrument. • Expert panel reviewed instrument. • Survey instrument piloted. • Survey instrument revised. • Updated survey approved by IRB.
June – Aug. 2012	Quantitative data collection	<ul style="list-style-type: none"> • Pre-notice email sent to recipients. • Survey invitation sent to recipients. • Survey reminders sent to recipients.
June – July 2012	Qualitative research protocol development	<ul style="list-style-type: none"> • Interview guides, consent forms, and translator confidentiality form developed. • Members of expert panel reviewed protocol. • IRB approved protocol.
June – July 2012	Qualitative case study identification	<ul style="list-style-type: none"> • Pre-interviews with program directors that completed survey. • Programs identified for case studies.
Aug. – Sept. 2012	Qualitative data collection	<ul style="list-style-type: none"> • Case studies of programs in Ohio and Virginia. <ul style="list-style-type: none"> ○ Key informant interviews ○ Focus groups ○ Field observations
Sept. – Oct. 2012	Quantitative and qualitative data analyses	<ul style="list-style-type: none"> • Quantitative analyses <ul style="list-style-type: none"> ○ Descriptive statistics ○ Pearson's Correlation ○ Multiple linear regression models • Qualitative analyses <ul style="list-style-type: none"> ○ Coding and thematic analyses • Mixing of quantitative and qualitative results
Nov. – Dec. 2012	Compile final report	<ul style="list-style-type: none"> • Interpretation and explanation of quantitative and qualitative results.

Appendix B: Survey Instrument

Immigrant and Refugee Beginning Farmer Program Survey

Introduction

PURPOSE

The purpose of this survey is to describe the ways that beginning farmer programs benefit immigrant and refugee farmers. This survey also explores the types of resources that immigrant and refugee farmers gain access to through participating in beginning farmer programs.

CONFIDENTIALITY

You can be assured of complete confidentiality. Your responses will be included as part of an overall summary of the responses. At no time will your responses be linked to you, your program, or your program participants.

INSTRUCTIONS

Individuals who work as program instructors, translators, directors, and coordinators can complete the survey. Depending on your program, one person may complete the survey or multiple people may complete the survey.

TIME TO COMPLETE THE SURVEY

The survey will take approximately 15 minutes or less to complete. Please answer each of the following questions in terms of your own experiences and opinions. If there are any questions or statements that you don't have any information about or you don't know how you feel, please check "don't know" or skip the question.

Thank you in advance for your time and participation. We very much appreciate your help!

1. Do you have immigrant and/or refugee participants in your program?

- ☐ Yes
☐ No

General Questions

First, we would like to ask you some general questions about your program.

2. How long have your current participants been in your program? List percentage of participants in each category (e.g., 25%, 50%, etc.).

Less than 1 year	<input type="text"/>
1 - 3 years	<input type="text"/>
More than 3 - 5 years	<input type="text"/>
5+ years	<input type="text"/>

Immigrant and Refugee Beginning Farmer Program Survey

3. Consider the organization that is the MAIN sponsor of this program. How would you categorize the organization?

- ☐ International NGO (non-governmental organization)
- ☐ Church
- ☐ Extension Service
- ☐ National NGO (non-governmental organization)
- ☐ Community-based NGO (non-governmental organization)
- ☐ College or university
- ☐ Government organization

Other (please specify)

4. What type of farmers are involved in your program? (Check all that apply.)

- ☐ Home or community gardeners
- ☐ Market gardeners (sells some food grown)
- ☐ Incubator farmers (multiple farmers on program-owned farmland)
- ☐ Independent farmers (farmer independently owns farmland)

5. Where is your program located?

- ☐ United States
- ☐ Canada

6. Please enter zip code in the United States.

7. Please enter city and province in Canada.

Immigrant and Refugee Beginning Farmer Program Survey

8. What is your role in the program?

- ☐ Program director / coordinator
- ☐ Program instructor (including translators)

Other (please specify)

Educational training and other resources

Now we would like to ask you about the educational training and other resources that are provided to immigrant and/or refugee participants in your program. The rest of the survey will focus on immigrant and/or refugee participants in your program ONLY.

9. How often are the following general agricultural production topics taught in your program?

Consider each time participants meet for a workshop, one-on-one consultation, or field training and technical assistance as one session.

	Never	1 - 2 sessions	3 - 4 sessions	5 - 6 sessions	6+ sessions
Crop planning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soils, nutrients, and irrigation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pest, disease, and weed management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farm equipment use and maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Harvest and post-harvest handling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organic certification	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GAP (Good Agricultural Practices) verification program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Immigrant and Refugee Beginning Farmer Program Survey

10. How often are the following business and marketing topics taught in your program?
Consider each time participants meet for a workshop, one-on-one consultation, or field training and technical assistance as one session.

	Never	1 - 2 sessions	3 - 4 sessions	5 - 6 sessions	6+ sessions
Record keeping	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial literacy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Business management (such as labor issues, keeping farm records)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing a business plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Developing a marketing plan	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifying markets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduction to direct marketing (such as farmers' markets, CSAs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Introduction to wholesale marketing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Legal issues (such as business structure, regulations)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
English language skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interacting with individuals in the marketplace	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

11. How often are production practices taught for the following crops?

Consider each time participants meet for a workshop, one-on-one consultation, or field training and technical assistance as one session.

	Never	1 - 2 sessions	3 - 4 sessions	5 - 6 sessions	6+ sessions
Vegetable production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grain production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Animal / livestock production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Aquaculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Landscape plant production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cut flower production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Honey production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Immigrant and Refugee Beginning Farmer Program Survey

12. Which of the following resources do participants receive access to through their participation in the program?

	Yes	No
Utilities (such as water or electricity)	<input type="radio"/>	<input type="radio"/>
Farming inputs (such as fertilizer or compost)	<input type="radio"/>	<input type="radio"/>
Access to farmland	<input type="radio"/>	<input type="radio"/>
Tractor	<input type="radio"/>	<input type="radio"/>
Cooler	<input type="radio"/>	<input type="radio"/>
Hoophouse	<input type="radio"/>	<input type="radio"/>
Irrigation system	<input type="radio"/>	<input type="radio"/>
Farming tools and equipment	<input type="radio"/>	<input type="radio"/>
Marketing support (such as development of logos or graphics)	<input type="radio"/>	<input type="radio"/>
Market access (such as a stand in local farmers' market or membership in CSA programs)	<input type="radio"/>	<input type="radio"/>
Legal support (such as assistance in gaining business license)	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>	

13. What are the requirements for participants to access the resource(s)? (Check all that apply.)

- ☐ Farming background
- ☐ Family members with off-farm income
- ☐ Family capacity
- ☐ Willingness to maintain production
- ☐ Program graduation
- ☐ Level of attendance (such as a minimum of 80% attendance)
- ☐ Completion of farm plan
- ☐ Proficiency in certain skills (such as tractor operation)
- ☐ Small fee (such as rent)
- ☐ Sign a lease agreement or contract
- ☐ There are no requirements.
- ☐ We do not provide access to the resources.

Other (please specify)

Immigrant and Refugee Beginning Farmer Program Survey

Interaction within the program

Now we would like to ask you about the level of interaction between the immigrant and/or refugee participants and the other individuals involved in your program.

14. Consider the organizations that partner with your program. How often do the immigrant and/or refugee participants interact with members of these organizations through your program?

	Never	A few times a year	Once a month	Once a week	A few times a week
Farmers' market managers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cooperative Extension Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Churches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restaurant owners or chefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community-supported agriculture (CSA) managers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
USDA Farm Service Agency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farm Bureau	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small business administration (county or state)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Universities or colleges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Resettlement organizations (government or non-profit)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local farm supply stores or other in-kind donors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
AmeriCorps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (please specify)	<input type="text"/>				

15. How often do the immigrant and/or refugee participants interact with other program participants during program activities?

	Never	A few times a year	Once a month	Once a week	A few times a week
Program director / coordinator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Translators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guest speakers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Immigrant and refugee program participants of the same ethnicity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Immigrant and refugee program participants of different ethnicity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-immigrant and refugee program participants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Immigrant and Refugee Beginning Farmer Program Survey

16. How often do immigrant and/or refugee participants contact people involved in the program for guidance concerning materials covered in class or in general related to farming?

	Never	A few times a year	Once a month	Once a week	A few times a week
Program director / coordinator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instructors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Translators	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guest speakers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Immigrant and refugee program participants of the same ethnicity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Immigrant and refugee program participants of different ethnicity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Non-immigrant and refugee program participants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. What are the expectations you have for immigrant and/or refugee participants in your program? Rate your agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
I expect the participants will attend program activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I expect the participants to interact with each other during the program activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I expect the participants to interact with the instructors and guest speakers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I expect the participants to get involved in hands-on activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I expect the participants to ask questions if they don't understand something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18. Are there other expectations you have for the immigrant and/or refugee participants in your program?

- ☐ Yes
☐ No

19. Please describe other expectations you have for immigrant and/or refugee participants in your program.

Immigrant and Refugee Beginning Farmer Program Survey

20. Consider the economic benefits that immigrant and/or refugee participants have gained as a result of your program. Rate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants are saving money on food by growing their own food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family members of the participants are saving money on food by growing their own food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have developed a farm plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have developed a marketing plan.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have sold their products at a farmers' market.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have sold their products through a CSA (community-supported agriculture program).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are selling more of their agricultural products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have acquired a business license.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are farming part-time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are farming full-time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have hired family members or community members to help them farm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farming is providing participants with a sustainable source of income.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farming is providing family members of the participants with a sustainable source of income.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farming is providing participants with supplemental income.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farming is providing family members of the participants with supplemental income.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Immigrant and Refugee Beginning Farmer Program Survey

21. Consider other benefits that immigrant and/or refugee participants have gained as a result of your program. Rate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants are engaging in more physical activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are eating greater amounts of healthy food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are interacting more with people in the program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are interacting more with people in the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are involving family members in their farming activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A greater amount of healthy food is being supplied to the immigrant and/or refugee communities in the area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A greater amount of healthy food is being supplied to the non-immigrant and refugee communities in the area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have more hope concerning their future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are more comfortable living in the United States.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are more calm and peaceful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants feel they have more social status in their community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have increased physical health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have increased mental health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants have an increased level of energy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other (please specify)

Level of involvement and trust

Now, we would like to ask you about the level of involvement and trust of immigrant and/or refugee participants in your program.

22. Consider the immigrant and/or refugee participants in your program. Rate your agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants can understand the material that is being taught.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants are able to communicate with the instructors and other participants.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants ask questions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Translators help participants' understand the material that is being taught.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants interact with each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants receive information concerning opportunities from other participants.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants receive information concerning opportunities from instructors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants receive information concerning opportunities from guest speakers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Immigrant and Refugee Beginning Farmer Program Survey

23. Consider the majority of the immigrant and/or refugee participants in your program.

How often do they attend program sessions?

- ☐ Rarely (0 – 25% of the time)
- ☐ Sometimes (26% - 50% of the time)
- ☐ Often (51% - 75% of the time)
- ☐ Always (76% - 100% of the time)

24. If immigrant and/or refugee participants are not able to attend program activities, what reasons do they give for their absence? (Check all that apply.)

- ☐ They have to work.
- ☐ They feel awkward or uncomfortable in the program setting.
- ☐ They have difficulty communicating with others.
- ☐ They don't understand what people in the program are saying.
- ☐ It would be culturally inappropriate for them to attend.
- ☐ They are not interested in program topics.
- ☐ The programs cost too much.
- ☐ They are unaware of program activities.
- ☐ They don't have child care.
- ☐ They don't have transportation.
- ☐ They are sick or a family member is sick.
- ☐ The translators are unable to attend.
- ☐ No reason given.

Other (please specify)

Immigrant and Refugee Beginning Farmer Program Survey

25. Consider the feelings of the immigrants and/or refugee participants toward the individuals involved in the program. Rate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants feel welcome.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants trust each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants share rides to program activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants help each other during the program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants trust the instructors.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants work with the instructors to find solutions to issues they have.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participants answer questions during the program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The participants trust the guest speakers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

General program and participant information

Finally we would like to ask you about the general characteristics of the immigrant and/or refugee participants involved in your program. You may be assured of complete confidentiality for you, your program, and your program participants.

26. How many immigrant and/or refugee participants are in your program this year (2012)?
List number of participants in each category.

Home or community gardener	<input type="text"/>
Market gardener (sells some food grown)	<input type="text"/>
Incubator farmer (multiple farmers on program-owned farmland)	<input type="text"/>
Independent farmer (farmer independently owns farmland)	<input type="text"/>

27. How would you describe the majority of immigrant and/or refugee participants in your program?

- ☐ The majority are refugees.
- ☐ The majority are non-refugee immigrants.
- ☐ There is an even split between refugees and non-refugee immigrants.
- ☐ I don't know.

28. What is the gender of the immigrant and/or refugee participants in your program?

- ☐ Less than 25% are women
- ☐ 25% - 50% are women
- ☐ More than 50% - 75% are women
- ☐ More than 75% - 100% are women

Immigrant and Refugee Beginning Farmer Program Survey

29. What is the age of the immigrant and/or refugee participants in your program? List the percentage of participants in each category (e.g., 25%, 50%, etc.).

Less than 15 years old	<input type="text"/>
15 – 19 years old	<input type="text"/>
20 – 24 years old	<input type="text"/>
25 – 29 years old	<input type="text"/>
30 – 34 years old	<input type="text"/>
35 – 39 years old	<input type="text"/>
40 – 44 years old	<input type="text"/>
45– 49 years old	<input type="text"/>
50 - 54 years old	<input type="text"/>
55 years or older	<input type="text"/>

30. What is the total annual household income of the majority of the immigrant and/or refugee participants? List the percentage of participants in each category (e.g., 25%, 50%, etc.).

Under \$9,999	<input type="text"/>
\$10,000 - \$19,999	<input type="text"/>
\$20,000 - \$29,999	<input type="text"/>
\$30,000 - \$39,999	<input type="text"/>
\$40,000 - \$49,999	<input type="text"/>
\$50,000 - \$59,999	<input type="text"/>
\$60,000 - \$69,999	<input type="text"/>
\$70,000 - \$79,999	<input type="text"/>
\$80,000 or more	<input type="text"/>
I don't know.	<input type="text"/>

Immigrant and Refugee Beginning Farmer Program Survey

31. What world region do immigrant and/or refugee participants in your program come from? (Check on all that apply.)

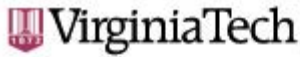
Africa (including Egypt, Liberia, Morocco, South Africa)	<input type="checkbox"/>
Asia (including China, India, Iran, Korea, Philippines, Vietnam)	<input type="checkbox"/>
Europe (including Belgium, Czechoslovakia, Denmark, France, Germany)	<input type="checkbox"/>
North America (including Canada, Mexico, Cuba, Haiti, Jamaica, Costa Rica, Guatemala, Honduras)	<input type="checkbox"/>
Oceania (including American Samoa, Australia, Guam, New Zealand)	<input type="checkbox"/>
South America (including Argentina, Brazil, Chile, Colombia, Venezuela)	<input type="checkbox"/>

32. Please use this space to share any additional comments regarding your perceptions, attitudes, and experiences concerning immigrant and refugee participants in your program.

THANK YOU SO MUCH FOR YOUR TIME AND OPINIONS!

Your input will help program leaders across the country develop more effective beginning farmer programs for immigrant and refugee farmers.

Appendix C: IRB Approval Letter for Quantitative Protocol



Office of Research Compliance
Institutional Review Board
2000 Kraft Drive, Suite 2000 (0497)
Blacksburg, VA 24060
540/231-4606 Fax 540/231-0959
email irb@ut.edu
website <http://www.irb.ut.edu>

MEMORANDUM

DATE: May 17, 2012
TO: Kim Niewolny, Lisa Sarah Hightower, R. Bruce Hull IV
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)
PROTOCOL TITLE: The social and economic benefits of beginning farmer programs for immigrant and refugee participants
IRB NUMBER: 12-498

Effective May 17, 2012, the Virginia Tech Institutional Review Board (IRB) Administrator, Carmen T Green, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report promptly to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 7**
Protocol Approval Date: **May 17, 2012**
Protocol Expiration Date: **May 16, 2013**
Continuing Review Due Date*: **May 2, 2013**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

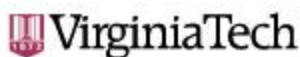
Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

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Appendix D: IRB Approval Letter for Revised Quantitative Protocol



Office of Research Compliance
Institutional Review Board
2000 Kraft Drive, Suite 2000 Q497
Blacksburg, VA 24060
540/231-4606 Fax 540/231-0959
email irb@ut.edu
website <http://www.irb.ut.edu>

MEMORANDUM

DATE: June 7, 2012
TO: Kim Niewolny, Lisa Sarah Hightower, R. Bruce Hull IV
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)
PROTOCOL TITLE: The social and economic benefits of beginning farmer programs for immigrant and refugee participants
IRB NUMBER: 12-498

Effective June 7, 2012, the Virginia Tech Institutional Review Board (IRB) Chair, David M Moore, approved the Amendment request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 7**
Protocol Approval Date: **May 17, 2012**
Protocol Expiration Date: **May 16, 2013**
Continuing Review Due Date*: **May 2, 2013**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

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Appendix E: Pre-Notice Letter



VirginiaTech

College of Agriculture
and Life Sciences

Department of Agricultural and Extension Education

2270 Litton-Reaves Hall (0343)

Blacksburg, Virginia 24061

E-mail: lisah829@vt.edu

June 11, 2012

Good morning,

I am writing to ask for your help with an important study being conducted by Virginia Tech and the Department of Agricultural and Extension Education. I am interested in learning more about the ways beginning farmer programs benefit immigrant and refugee farmers. Specifically, this research will examine the components of beginning farmer programs which contribute to increasing the economic, social, and physical well-being of immigrant and refugee participants. The significance of this study is substantial and your participation is very valuable. Participation is entirely voluntary and your responses will be kept confidential.

I would like to do everything possible to make it easy for you to participate in this study. I am writing in advance because many times people like to know ahead of time that they will be asked to fill out a survey. Tomorrow you will receive an email that contains a link to an online survey to complete as part of this study. When you receive the link to the survey, I hope that you will take a few minutes to complete it. This study will only be successful with the help of generous individuals like you!

Many thanks,

A handwritten signature in black ink that reads 'Lisa Hightower'.

Ms. Lisa Hightower
Graduate Research Assistant

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Appendix F: Survey Invitation Letter



College of Agriculture
and Life Sciences

Department of Agricultural and Extension Education
2270 Litton-Reaves Hall (0343)
Blacksburg, Virginia 24061
E-mail: lisah829@vt.edu

June 12, 2012

Good morning,

Yesterday you received an email requesting your help with a study being conducted by Virginia Tech and the Department of Agricultural and Extension Education. This study will explore the benefits that immigrant and refugee farmers receive from participating in beginning farmer programs. You have been selected to participate in this study because you have been identified as an individual who works with a beginning farmer program that has immigrant and refugee participants.

Below is a link to an online survey that I hope you will complete. The questions in this survey should take less than 15 minutes to complete, and your responses are voluntary and will be kept confidential.

https://www.surveymonkey.com/s/immigrant_beginning_farmer_programs

This study has been reviewed and approved by Virginia Tech's Institutional Review Board (IRB). If you have questions about your rights as a participant, you may contact the IRB office at (540) 231-4991. If you have questions regarding this survey, please do not hesitate to contact me at lisah829@vt.edu or (540) 588-8633. By taking a few minutes to share your thoughts, you will be helping out a great deal!

I appreciate your time and consideration in completing the survey. This study will only be successful with the help of generous individuals like you!

Many thanks,
Lisa Hightower

If you would like to be removed from this email list, click on the link below.

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Appendix G: First Survey Reminder Letter



VirginiaTech

College of Agriculture
and Life Sciences

Department of Agricultural and Extension Education

2270 Litton-Reaves Hall (0343)

Blacksburg, Virginia 24061

E-mail: lisah829@vt.edu

June 25, 2012

Good morning,

Within the past two weeks you should have received an email requesting your help with a study being conducted by Virginia Tech and the Department of Agricultural and Extension Education. This study will explore the social and economic benefits that immigrant and refugee farmers receive through participation in beginning farmer programs. The significance of this study is substantial; therefore, your participation is important.

If you have completed and returned the survey, please accept my sincere thanks! The success of this study is dependent upon generous individuals like you. If you have not completed the survey, I hope you will take a few minutes of your time to do so. I am especially grateful for your help with this study.

Here is the link to the survey:
[SurveyLink]

If you have any questions, feel free to contact me at lisah829@vt.edu or (540) 588-8633.

Many thanks,

Ms. Lisa Hightower
Graduate Research Assistant

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.
[RemoveLink]

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Appendix H: Second Survey Reminder Letter



VirginiaTech

College of Agriculture
and Life Sciences

Department of Agricultural and Extension Education

2270 Litton-Reaves Hall (0343)

Blacksburg, Virginia 24061

E-mail: lisah829@vt.edu

July 9th, 2012

Good morning,

I hope this email finds you well and you had a good 4th of July.

In early June, I emailed you a request asking for your help with a research study exploring the benefits that immigrant and refugee farmers receive through participating in beginning farmer programs. As part of the request, a link to a web survey was included. To the best of my knowledge, the survey has not been completed yet. The survey should take less than 15 minutes to complete.

Here is a link to the survey:

[SurveyLink]

Your responses are voluntary, and they will be kept confidential. If you have questions about your rights as a participant, feel free to contact the Virginia Tech IRB office at (540) 231-4991. If you have questions regarding this survey, please do not hesitate to contact me at lisah829@vt.edu or (540) 588-8633.

I appreciate your time and consideration in completing the survey. This study will only be successful with the help of generous individuals like you!

Many thanks,

Ms. Lisa Hightower
Graduate Research Assistant

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

[RemoveLink]

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Appendix I: Key Informant Interview Guide for Program Participants

Farming program name/location:

Date:

Name:

Nationality:

Translator present (Y/N):

I am a student at Virginia Tech and I'm conducting a study of farming programs for immigrant and refugee farmers. I want to learn about how these programs help refugee and immigrant farmers become successful. The information I'm collecting will be used to help program directors create more effective programs for immigrant and refugee farmers.

I learned that you are involved in a farming program and I was hoping we could talk about your experiences in the program. I want to let you know that your answers will be confidential. I will not use your real name in my report. (If a translator is present) The translator helping us today will keep everything you say confidential. S/he will not share the information we discuss today with anyone.

I have selected your name from a list of individuals who participated in the program. This interview is voluntary and you don't have to answer questions you don't want to answer.

The interview will take no more than one hour. Do you have any questions before we begin?

INTRODUCTION

1. Why did you decide to participate in the farming program?

EMBEDDED RESOURCES

1. What are the most important things you learned in the farming programs?
 - a. PROBE: What are some of the most valuable farming resources that you got to use by participating in the program (i.e., farmland, tools, utilities)?

SOCIAL NETWORKS AND TIES

2. Who in the program do you interact with the most such as other participants, the instructors, or guest speakers?

TRUST AND RECIPROCITY

3. Who do you think has been the most helpful in the program?

4. How would you describe your relationship with people in the program such as other participants, instructors, or translators?

AGENCY

5. What are some challenges that have made it hard for you to start farming?
 - a. PROBE: How have you overcome these challenges?
6. How do you learn about new opportunities such as new ways to grow crops or new markets to sell your crops at?

ECONOMIC, SOCIAL, AND PHYSICAL WELL-BEING

7. What kinds of benefits have you received by participating in the farming program?

GENDER

8. How, if at all, has being a woman/man affected your ability to become a successful farmer?

WRAP UP QUESTIONS

9. Is there anything else you would like to add about your experiences in the program?
10. Is there anyone else who is involved in the program that I should talk to?

THANK YOU SO MUCH FOR TAKING THE TIME TO TALK WITH ME TODAY.

Do you have any questions that you would like to ask me?

Would you like a copy of my final report?

Appendix J: Key Informant Interview Guide for Agricultural Educators

Farming program name/location:

Date:

Name:

Role in farming program:

I am a student at Virginia Tech and I'm conducting a study of farming programs for immigrant and refugee farmers. I want to learn about how these programs help refugee and immigrant farmers become successful. I want to use the information I'm collecting to help program directors create programs that will help refugee and immigrant farmers be successful.

I learned that you work with a farming program and I was hoping we could talk about your experiences with the program. I want to let you know that your answers will be anonymous and I will not use your real name in my report.

I have selected your name from a pool of individuals working with the program. Please know that you and your organization will remain anonymous. This interview is voluntary and you don't have to answer questions you don't want to answer.

The interview will take no more than one hour. Do you have any questions before we begin?

INTRODUCTION

1. In your opinion, why do you think the African refugees and immigrants want to participate in your farming program?

EMBEDDED RESOURCES

2. Consider all the topics you teach through your program. Which topics do you think are the most important in helping the immigrant and refugee participants become successful?
 - a. PROBE: What are the most valuable farming resources that you provide to immigrant and refugee participants?

SOCIAL NETWORKS AND TIES

3. Consider the people the immigrant and refugee participants interact with through your program. In your opinion, who do you think they interact with the most and why?

TRUST AND RECIPROCITY

4. How has building relationships with people in the program and outside the program helped refugee and immigrant participants be successful?

AGENCY

5. What do you think are the biggest challenges to refugee and immigrant participants being successful?
 - a. PROBE: How do you and other people in the program help them overcome these challenges?
6. In your opinion, where do the participants learn about new opportunities such as new ways to grow crops or new markets to sell their crops at?

ECONOMIC, SOCIAL, AND PHYSICAL WELL-BEING

7. In your opinion, what are the major benefits that refugees and immigrants receive through participating in your program?

GENDER

8. In your opinion, has the gender of the participants been a factor in how successful they have become as farmers?

WRAP UP QUESTIONS

9. Is there anything else you would like to add about your experiences in the program?
10. Is there anyone else who is involved in the program that I should talk to?

THANK YOU SO MUCH FOR TAKING THE TIME TO TALK WITH ME TODAY.

Do you have any questions that you would like to ask me?

Would you like a copy of my final report?

Appendix K: Key Informant Interview Guide for Community Partners

Farming program name/location:

Date:

Name:

Organization:

Role in farming program:

I am a student at Virginia Tech and I'm conducting a study of farming programs for immigrant and refugee farmers. I want to learn about how these programs help refugee and immigrant farmers become successful. I want to use the information I'm collecting to help program directors create programs that will help refugee and immigrant farmers be successful.

I learned that your organization works with a farming program and I was hoping we could talk about your experiences with the program. I want to let you know that your answers will be anonymous and I will not use your real name in my report.

I have selected your name from a pool of individuals who are affiliated with the program. Please know that you and your organization will remain anonymous. This interview is voluntary and you don't have to answer questions you don't want to answer.

The interview will take no more than one hour. Do you have any questions before we begin?

INTRODUCTION

1. How did you start working with the farming program?

EMBEDDED RESOURCES

2. What is your role in the program?

SOCIAL NETWORKS AND TIES

3. Who do you interact with most in the program (i.e., the participants, instructors, translators)?
 - a. PROBE: How often do you interact with the immigrant and refugee farmers?

TRUST AND RECIPROCITY

4. How would you describe your relationship with people involved in the program?

AGENCY

5. In your opinion, what are the major challenges for the immigrant and refugee farmers?
 - a. PROBE: How does your involvement in the program help the immigrant and refugee farmers overcome these obstacles?

ECONOMIC, SOCIAL, AND PHYSICAL WELL-BEING

6. In your opinion, what are the benefits for refugee and immigrant farmers who participate in the program?

GENDER

7. In your opinion, has the gender of the participants been a factor in their success as farmers?

WRAP UP QUESTIONS

8. Is there anything else you would like to add about your experiences with the program?
9. Is there anyone else who is involved in the program that I should talk to?

THANK YOU SO MUCH FOR TAKING THE TIME TO TALK WITH ME TODAY.

Do you have any questions that you would like to ask me?

Would you like a copy of my final report?

Appendix L: Informed Consent Form

Key Informant Interview Consent Form

Virginia Polytechnic Institute and State University
Informed Consent for Participants in Research Projects Involving Human Subjects

Project Title: The social and economic benefits of beginning farmer programs for African immigrant and refugee farmers.

Investigators: Ms. Lisa Hightower, Graduate Research Assistant, Virginia Tech
Dr. Kim Niewolny, Assistant Professor, Virginia Tech

I. Purpose of the Research

The purpose of this study is to explore the characteristics of beginning farmer programs that contribute to social and economic benefits for African immigrant and refugee farmers. The study will include interviews with individuals that have been involved in beginning farmer programs as participants, instructors, program coordinators, or community partners.

II. Procedures

Your participation in the interview will involve sharing your perceptions, attitudes, and experiences concerning the beginning farmer program that you are involved with. The interview will last no longer than 60 minutes and it will take place at a location of your convenience. You may withdraw at any time.

III. Risks

This study has been reviewed and approved by the Virginia Tech Institutional Review Board. The individual identities of the participants will be protected at all times. This research involves minimal risk to the participants.

IV. Benefits

There are no known benefits to participants. The data collected from participants during this research will be developed into one or more papers for publication in academic journals or for presentation at professional conferences. The results of the study will help beginning farmer program coordinators and community development practitioners develop more effective farming programs for immigrant and refugee farmers.

V. Extent of Anonymity and Confidentiality

Your identity, and that of any individuals who you mention, will be kept confidential at all times and will be known only to your interviewer. The interviews will be audio recorded and later transcribed. When transcribing the interviews, pseudonyms (i.e., false names) will be used for your name and any other individuals you mention. These pseudonyms will also be used in preparing all written reports of the research. Any details in the interview recordings that could identify you, or anyone you mention, will also

Hightower | Page 1 of 2

be altered during the transcription process. After the transcribing is complete, the audio recordings will be destroyed. The transcriptions will be stored on a password-protected computer indefinitely.

It is possible the Institutional Review Board (IRB) at Virginia Tech will view this study's collected data for auditing purposes. The IRB is responsible for overseeing the protection of human subjects who are involved in research.

VI. Compensation

You will receive no compensation for participating in this study.

VII. Freedom to Withdraw

Your participation in this research is entirely voluntary and your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. Similarly, you are free to withdraw from this research at any time. If you choose to withdraw from the research, any information about you and any data not already analyzed will be destroyed. You are free to choose not to answer any question.

VIII. Participant's Responsibilities

As a participant you are responsible for completing one interview that should last no longer than 60 minutes.

IX. Participant's Permission

"I voluntarily agree to participate in this research. I have read and understand this informed consent and the conditions of this research. I hereby acknowledge the above and give my voluntary consent."

Signature of Participant

Printed Name of Participant

Date

If you have any questions about this research or how it is conducted, feel free to contact:

Ms. Lisa Hightower, Graduate Student, Department of Agricultural and Extension Education, Virginia Tech, Phone: 540-588-8633, Email: lisah829@vt.edu, 2270 Litton-Reaves Hall, Blacksburg, VA 24061

Dr. Kim Niewolny, Assistant Professor, Department of Agricultural and Extension Education, Virginia Tech, Phone: 540-231-5784, Email: Niewolny@vt.edu, 282 Litton-Reaves Hall, Blacksburg, VA 24061

Mr. David Moore, Assistant Vice President for Research Compliance, Virginia Tech Institution Review Board, Phone: 540-231-4991, Email: moored@vt.edu, 2000 Kraft Drive, Suite 2000, CRC Bldg. VIII, Blacksburg, VA 24061

Appendix M: Informed Consent Form Translated into Kurundi

Virginia Polytechnic Institute and State University
Informed Consent for Participants in Research Projects Involving Human Subjects

Ikigo Mpuzabuhinga ca Virijiniya na Kaminuza ya Reta

Icemezo Ntangaruhusha c' Abitaba Ibikorwa vy' Ubushakashatsi bizoba Bisaba Uruhara rw' Abantu

Project title: The social and economic benefits of beginning farmer programs for African refugee and immigrant farmers.

Izina ry' igikorwa: Inyungu mu vy' ubutunzi n' imibano impunzi z' Abanyafrika n' abimuka bakura mu gutanguza imigambi y' uburimyi n' ubworozi.

Investigators: Ms. Lisa Hightower, Graduate Research Assistant, Virginia Tech
Dr. Kim Niewolny, Assistant Professor, Virginia Tech lucre

Abashakashatsi: Umupfasoni Lisa Hightower, Uwufasha mu bushakashatsi kuri Kaminuza ya Virginia Tech

Doguteri Kim Niewolny, Umwigisha ari mu mutamana kuri Kaminuza ya Virginia Tech

I. Purpose of the Research

The purpose of this study is to understand how farming programs benefit African refugee and immigrant farmers. The study will include interviews with people involved in immigrant and refugee farming programs such as program participants, instructors, and community partners such as farmers' market managers.

I. Ihangiro / Intumbero ry' ubushakashatsi

Intumbero y' iki cigwa ni ugutahura ingene imigambi y' uburimyi ifasha impunzi z' Abanyafrika n' abandi bimuka basanzwe ari abarimyi. Muri ubwo bushakashatsi hazobamwo amatohoza aciye mu biganiro hamwe n' abasanzwe bafise uruhara mu migambi y' uburimyi mu bimuka no mu mpuzi : Abitaba iyo migambi, ababigisha, abo bakorana mu bice babamwo; akarorero kakaba abajejwe amasoko y' abarimyi.

II. Procedures

During the interview I will ask you to share your experiences and attitudes concerning the farmer program you have been involved in. The interview will last no longer than 60 minutes (1 hour) and it will take place at a location that is easy for you to get to. You may stop the interview or withdraw from the study at any time.

II. Uko bizagenda:

Muri icyo kiganiro tuzogirana, nzogusaba uncire ku mayange ivyo washoboye kwiga canke kubona n' ingene uvyifatamwo muri uwo mugambi w' uburimyi urimwo. Icyo kiganiro ntikizomara igihe kirenga iminota mirongo itandatu (isaha imwe) kandi kizobera mu kibanza kikworohere gushikako. Mugihe icyo arico cose, urafise uburenganzira bwo guhagarika icyo kiganiro canke kuva muri icyo cigwa burundu.

III. Risks

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This study has been reviewed and approved by the Virginia Tech Institutional Review Board. The interview is confidential and the identity of the participants will not be shared. This research involves minimal risk to the participants.

III. Ingaruka

Iki cigwa caranonosowe kandi caremejwe n'urwego rw'itosora ry'ivyirwa rwa Kaminuza y'ubuhinga ya Virijiniya. Ibiganiro vy'itohoza bitunganywa mw'ibanga kandi ibiranga ababazwa (izina, imyaka, aho babaye, ...) bizogumizwa mw'ibanga (ntibizomenyekanishwa abandi). Iki cigwa nta ngaruka mbi ziboneka gitera abemeye gukorana na buno bushakashatsi.

IV. Benefits

You will not receive any benefits from participating in this interview. The results of the study will help people working with immigrant and refugee farmers develop better farming programs in the future.

IV. Udushirukabute

Muri rino tohoza, nta gashirukabute kagutegekanirijwe. Ibizova muri kino cigwa bizofasha abakoranana n'abimuka hamwe n'impunzi z'abirimirizi mu gutunganya imigambi y'uburimi myiza kurusha muri kazoza.

V. Extent of Anonymity and Confidentiality

Your name, and the name of anyone you talk about, will be kept confidential at all times. Your real name will only be known by the person who is interviewing you and the translator, if a translator is present. The researcher and the translator will keep your name and the name of anyone you mention confidential. The interview will be audio recorded so that the interviewer can have an accurate record of what you've said. The audio recording will be typed out into a transcript so the researcher can review your comments more carefully. To make sure that no one knows your name, the researcher will give you a fake name or a pseudonym when the interview is typed out. No one will be able to identify you from the interview transcript. Any details in the interview that could identify you will also be changed to protect your identity. After the interview has been typed out, or transcribed, the audio recording will be destroyed. The interview transcripts will be stored on a computer with password-protection so only researchers involved in the study can access them.

The only people besides the researchers involved in the study that may see the interview transcripts are people at the Institutional Review Board at Virginia Tech who sometimes review study materials to make sure the researchers are conducting their studies in a way that protects the participants.

V. Urugero rw'Ibanga n'Ugukingira Ibiranga Umuntu

Ryaba izina ryawe, canke iry'uwo uwariwe wese uvuga ko ikintu, yompi azoshingurwa mw'ibanga igihe cose. Izina ryawe ry'ukuri rizomenywa gusa n'uwo muzoganzira hamwe n'umusobanuzi wiwe mugihe ahari. Umushakashatsi n'umusobanuzi bazogumiza mw'ibanga izina ryawe hamwe n'irindi zina iryariyoyose uzoshikiriza. Ibizoshikirizwa bizofatwa mu bisamamajwi kugira uwutohoza ashingure ivyashikirijwe nkuko biri atabigatiwe. Ivyabitswe mu bisamamajwi bizokwandikwa kugira umushakashatsi ashobore kuvyiga yitonze. Kugira ntihagire uwumenya izina ryawe umushakashatsi

azoguha irindi zina, nk'itazirano mugihe bazoba bariko barandika ivyafashwe mu majwi. Ntatumwe azoguca n'ikanda biciye mu biganirizo bizoba yakozwe canke mu rwandiko ruzosohorwa. Ikindi kintu cose cosehobora gutuma umenyekeya naco nyene kizohindurwa kugira ibikuranga bikingirwe. Amatohoza amaze kwandikwa, amajwi azoba yafashwe azofutwa. Inzandiko nazo zizoshingurwa mu ntunganyabikorwa / kinyabwoko (ikimpoteri) atawundi ashobora kuyugurura atari uwubifitiye uburenganzira, kugirango bashakashatsi mwakoranye aho ari bo bonyene bazisoma.

Abandi bashobora kuzubona ivyo vyandiko, turetse abo bashakashatsi, ni abagize urwego rw'inonosora kuri Kaminuza y'ubuhinga ya Virijiniya basanzwe rimwemurumuna batosora ivyavuye mu bushakashatsi kugirango bamenye vy' ukuri ko ubushashatsi butunganyijwe mu buryo ababufisemwo uruhara bose bakingirwe.

VI. Compensation

You will receive no compensation, or money, for participating in this study.

VI. Umukando

Nta mukando canke amahera uzahabwa kubera wifatanije n'abandi mu gufasha muri kino cigwa

VII. Freedom to Withdraw

It is your choice whether or not you take part in this interview. If you decide not to take part in this interview you will not lose any benefits and there will be no penalties of any kind. You are free to stop the interview or stop being involved in this study at any time. If you want to stop being involved in this study, any information about you will be destroyed. You do not have to answer any questions you do not want to answer.

VII. Uburenganzira bwo Gukuramwo Akarenge

Ni wewe wihitiramo kwitaba canke kutitaba aho kamo ko gufasha muri buno bushakashatsi. Uhisemwo kudafasha muri iki cigwa, ntaho uzohomba kandi nta n'iyindi ngarukambi izokubaho. Uremurwe kandi guhagarika uruhara rwawe muri kino kirwa umwanya uwariwo wose. Ushatse gukuramwo akarenge, ivyo uzoba washikirije vyose bizofutwa. Vyongeye, urafise uburenganzira bwo kutishura ikibazo icyo ari cyo cose udashaka kwishura.

VIII. Participant's Responsibilities

If you decide to participate in this study you will be asked to complete one interview that will last no longer than 60 minutes (1 hour).

VIII. Ibikwerekeye / Uruhara Rwawe

Mugihe wemeye gufasha muri iki cigwa, uzasabwa kubazwa mu kiringo kitarenga iminota 60 (isaha imwe).

IX. Participant's Permission

Please sign below if you agree with the following statement:

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"I voluntarily agree to participate in this research. I have read and understand this informed consent and the conditions of this research. I hereby acknowledge the above and give my voluntary consent."

IX. Uruhusa Ruvuye ku Witaba Kino Cigwa

Turagusavye ushire umukono aha muni nimba wemeye ingingo zikurikira

"Ndemeneye ata gahato gufasha muri buno mushakashatsi. Nasomye kandi ndatahura iki cemezo ntangaruhusha hamwe n'ingingo ziranga buno bushakashatsi. Ndemeye ivyanditse imbere kandi ndatanze uruhusha rwanje atagahato"

Signature of Participant

Printed Name of Participant

Date

Igikumu c'uwubazwa

Izina ry'uwubazwa ryanditswe n'indome nkuru Itariki

If you have any questions about this research or how it is conducted, feel free to contact:

Nimba ufise ikibazo icarico cose ku bijanye n'ubu bushakashatsi canke ingene buzoshirwa mu ngiro akura/andikira:

Ms. Lisa Hightower
Graduate Research Assistant, lisah829@vt.edu

Umupfasoni Lisa Hightower
Uwufasha mu rwego rw'ubushakashatsi, lisah829@vt.edu

Dr. Kim Niewolny
Assistant Professor, Niewolny@vt.edu

Doguteri Kim Niewolny
Umwigisha ari mu mutamana, Niewolny@vt.edu

Mr. David Moore
Virginia Tech Institution Review Board, moored@vt.edu

Umushingatahe David Moore
Urwego rw'Itosora muri Kamimnuza y'Ubuho ya Virijiniya; moored@vt.edu

Appendix N: Translator Confidentiality Agreement Form

Translator Confidentiality Agreement Form

Virginia Polytechnic Institute and State University
Translator Confidentiality Agreement

I will respect the following conditions of confidentiality concerning my role as a translator with the research study *"The social and economic benefits of beginning farmer programs for African immigrant and refugee farmers."*

- To keep strictly confidential all information that may be communicated to me verbally or in written or any other form for purposes of translation.
- I will take all precautions necessary to prevent knowledge of this information from reaching any third parties outside of the research team.
- I will not use any information provided for any other purpose than to provide the translations required by the research team.

"I have read and understand this confidentiality agreement. I agree to follow the conditions of confidentiality outlined above."

Translator signature

Printed Name of Translator

Date

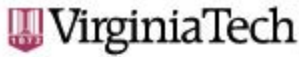
If you have any questions about this research or how it is conducted, feel free to contact:

Ms. Lisa Hightower, Graduate Student, Department of Agricultural and Extension Education, Virginia Tech, Phone: 540-588-8633, Email: lisah829@vt.edu, 2270 Litton-Reaves Hall, Blacksburg, VA 24061

Dr. Kim Niewolny, Assistant Professor, Department of Agricultural and Extension Education, Virginia Tech, Phone: 540-231-5784, Email: Niewolny@vt.edu, 282 Litton-Reaves Hall, Blacksburg, VA 24061

Mr. David Moore, Assistant Vice President for Research Compliance, Virginia Tech Institution Review Board, Phone: 540-231-4991, Email: moored@vt.edu, 2000 Kraft Drive, Suite 2000, CRC Bldg. VIII, Blacksburg, VA 24061

Appendix O: IRB Approval Letter for Qualitative Protocol



Office of Research Compliance
Institutional Review Board
2000 Kraft Drive, Suite 2000 Q497
Blacksburg, VA 24060
540/231-4606 Fax 540/231-0959
email irb@ut.edu
website <http://www.irb.ut.edu>

MEMORANDUM

DATE: July 20, 2012
TO: Kim Niewolny, Lisa Sarah Hightower
FROM: Virginia Tech Institutional Review Board (FWA00000572, expires May 31, 2014)
PROTOCOL TITLE: The social and economic benefits of beginning farmer programs for African immigrant and refugee farmers: A series of case studies
IRB NUMBER: 12-668

Effective July 20, 2012, the Virginia Tech Institutional Review Board (IRB) Chair, David M. Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

PROTOCOL INFORMATION:

Approved As: **Expedited, under 45 CFR 46.110 category(ies) 6,7**
Protocol Approval Date: **July 20, 2012**
Protocol Expiration Date: **July 19, 2013**
Continuing Review Due Date*: **July 5, 2013**

*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

Invent the Future

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
An equal opportunity, affirmative action institution

Appendix P: Complete Survey Results

Survey Respondents

N = 126 survey responses

Question 1: Do you have immigrant and/or refugee participants in your program?

	Response Percent
Yes	88.7%
No*	11.3%

* Note: If respondents answered 'No' they did not complete the rest of the survey.

Question 2: How long have your current participants been in your program? Check all that apply.

	Response Percent
Less than 1 year	78.1%
1 - 3 years	78.1%
More than 3 - 5 years	47.9%
5+ years	33.3%

Question 3: Consider the organization that is the MAIN sponsor of this program. How would you categorize the organization?

	Response Percent
Church	2.2%
Community-based NGO (non-governmental organization)	55.9%
National NGO (non-governmental organization)	3.2%
International NGO (non-governmental organization)	5.4%
Extension Service	14.0%
College or university	4.3%
Government organization	15.1%

Question 4: What types of farmers are involved in your program? (Check all that apply.)

	Response Percent
Home or community gardeners	62.1%
Market gardeners (sells some food grown)	54.7%
Incubator farmers (multiple farmers on program-owned farmland)	57.9%
Independent farmers (farmer independently owns farmland)	34.7%

Question 5: Where is your program located?

	Response Percent
United States	98.0%
Canada	2.0%

Question 6: What is your role in the program?

	Response Percent
Program director / coordinator	82.9%
Program instructor (including translators)	17.1%

Question 7: How often are the following general agricultural production topics taught in your program? Consider each time participants meet for a workshop, one-on-one consultation, or field training and technical assistance as one session.

	Never	1-2 sessions	3-4 sessions	5-6 sessions	6+ sessions
Crop planning	9.9%	40.7%	28.6%	7.7%	13.2%
Soils, nutrients, and irrigation	7.8%	43.3%	22.2%	10.0%	16.7%
Pest, disease, and weed management	11.2%	33.7%	15.7%	18.0%	21.3%
Farm equipment use and maintenance	16.7%	50.0%	21.1%	4.4%	7.8%
Harvest and post-harvest handling	8.9%	38.9%	26.7%	7.8%	17.8%
Organic certification	40.5%	44.0%	60.0%	7.1%	2.4%
GAP (Good Agricultural Practices) verification program	42.0%	40.7%	11.1%	3.7%	2.5%

Question 8: How often are the following business and marketing topics taught in your program? Consider each time participants meet for a workshop, one-on-one consultation, or field training and technical assistance as one session.

	Never	1-2 sessions	3-4 sessions	5-6 sessions	6+ sessions
Record keeping	20.4%	39.8%	20.4%	10.8%	8.6%
Financial literacy	28.9%	36.7%	18.9%	5.6%	10.0%
Business management (such as labor issues, keeping farm records)	23.9%	39.1%	19.6%	8.7%	8.7%
Developing a business plan	26.1%	27.2%	25.0%	12.0%	9.8%
Developing a marketing plan	21.3%	38.2%	20.2%	11.2%	9.0%
Identifying markets	21.3%	34.8%	22.5%	12.4%	9.0%
Introduction to direct marketing (such as farmers markets, CSAs)	22.7%	31.8%	19.3%	11.4%	14.8%
Introduction to wholesale marketing	37.5%	34.1%	15.9%	4.5%	8.0%
Leadership skills	46.6%	30.7%	14.8%	2.3%	5.7%
Legal issues (such as business structure, regulations)	32.6%	42.7%	15.7%	3.4%	5.6%
English language skills	48.8%	11.9%	10.7%	2.4%	26.2%
Interacting with individuals in the marketplace	27.4%	39.3%	17.9%	7.1%	8.3%

Question 9: How often are production practices taught for the following crops? Consider each time participants meet for a workshop, one-on-one consultation, or field training and technical assistance as one session.

	Never	1-2 sessions	3-4 sessions	5-6 sessions	6+ sessions
Vegetable production	6.7%	16.9%	24.7%	13.5%	38.2%
Grain production	75.9%	19.3%	3.6%	0.0%	1.2%
Fruit production	39.3%	28.6%	17.9%	3.6%	10.7%
Animal / livestock production	55.4%	18.1%	12.0%	3.6%	10.8%
Aquaculture	87.5%	7.5%	3.8%	0.0%	1.3%
Landscape plant production	67.5%	24.1%	6.0%	1.2%	1.2%
Cut flower production	69.9%	21.7%	3.6%	2.4%	2.4%
Honey production	65.4%	25.9%	3.7%	1.2%	3.7%

Question 10: Which of the following resources do participants receive access to through their participation in the program?

	Yes	No
Utilities (such as water or electricity)	72.4%	27.6%
Farming inputs (such as fertilizer or compost)	76.1%	23.9%
Access to farmland	77.0%	23.0%
Tractor	50.6%	49.4%
Cooler	49.4%	50.6%
Hoophouse	44.7%	55.3%
Irrigation system	65.5%	34.5%
Farming tools and equipment	81.6%	18.4%
Marketing support (such as development of logos or graphics)	60.9%	39.1%
Market access (such as a stand in local farmers market or membership in CSA programs)	73.6%	26.4%
Legal support (such as assistance in gaining business license)	55.8%	44.2%

Question 11: What are the requirements for participants to access the resource(s)? (Check all that apply.)

	Response Percent
Farming background	36.8%
Family members with off-farm income	8.0%
Family capacity	28.7%
Willingness to maintain production	65.5%
Program graduation	26.4%
Level of attendance (such as a minimum of 80% attendance)	47.1%
Completion of farm plan	32.2%
Proficiency in certain skills (such as tractor operation)	16.1%
Small fee (such as rent)	33.3%
Sign a lease agreement or contract	44.8%
There are no requirements.	16.1%
We do not provide access to the resources.	8.0%

Question 12: Consider the organizations that partner with your program. How often do the immigrant and/or refugee participants interact with members of these organizations through your program?

	Never	A few times a year	Once a month	Once a week	A few times a week
AmeriCorps	70.0%	12.5%	5.0%	3.8%	8.8%
Churches	32.1%	28.4%	11.1%	17.3%	11.1%
Cooperative Extension Service	32.9%	45.9%	11.8%	3.5%	5.9%
Local farm supply stores or	35.4%	41.5%	15.9%	6.1%	1.2%

other in-kind donors					
Universities or colleges	25.3%	48.2%	14.5%	10.8%	1.2%
Farm Bureau	72.6%	25.0%	1.2%	0.0%	1.2%
Small business administration (county or state)	64.3%	31.0%	2.4%	0.0%	2.4%
Farmers market managers	30.1%	42.2%	6.0%	13.3%	8.4%
Restaurant owners or chefs	41.0%	41.0%	8.4%	6.0%	3.6%
USDA Farm Service Agency	52.9%	42.4%	2.4%	2.4%	0.0%
Resettlement organizations (government or non-profit)	40.0%	27.5%	3.8%	8.8%	20.0%
Community-supported agriculture (CSA) managers	45.1%	29.3%	3.7%	8.5%	13.4%

Question 13: How often do the immigrant and/or refugee participants interact with other program participants during program activities?

	Never	A few times a year	Once a month	Once a week	A few times a week
Program director / coordinator	1.1%	27.6%	14.9%	17.2%	39.1%
Instructors	4.7%	18.8%	11.8%	24.7%	40.0%
Translators	6.2%	28.4%	8.6%	19.8%	37.0%
Guest speakers	12.2%	58.5%	22.0%	7.3%	0.0%
Immigrant and refugee program participants of the same ethnicity	6.1%	15.9%	6.1%	14.6%	57.3%
Immigrant and refugee program participants of different ethnicity	17.1%	19.5%	7.3%	18.3%	37.8%
Non-immigrant and refugee program participants	18.8%	22.5%	10.0%	20.0%	28.8%

Question 14: How often do immigrant and/or refugee participants contact people involved in the program for guidance concerning materials covered in class or in general related to farming?

	Never	A few times a year	Once a month	Once a week	A few times a week
Program director / coordinator	11.0%	30.5%	9.8%	23.2%	25.6%
Instructors	12.2%	24.4%	6.1%	22.0%	35.4%

Translators	18.7%	26.7%	17.3%	14.7%	22.7%
Guest speakers	42.5%	45.0%	8.8%	2.5%	1.3%
Immigrant and refugee program participants of the same ethnicity	12.8%	17.9%	10.3%	16.7%	42.3%
Immigrant and refugee program participants of different ethnicity	28.6%	22.1%	13.0%	14.3%	22.1%
Non-immigrant and refugee program participants	28.9%	32.9%	13.2%	10.5%	14.5%

Question 15: What are the expectations you have for immigrant and/or refugee participants in your program? Rate your agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
I expect the participants will attend program activities.	2.4%	1.2%	54.8%	41.7%
I expect the participants to interact with each other during the program activities.	2.5%	2.5%	51.9%	43.2%
I expect the participants to interact with the instructors and guest speakers.	2.4%	7.2%	55.4%	34.9%
I expect the participants to get involved in hands-on activities.	1.2%	3.7%	46.3%	48.8%
I expect the participants to ask questions if they don't understand something.	2.4%	9.6%	45.8%	42.2%

Question 16: Consider the economic benefits that immigrant and/or refugee participants have gained as a result of your program. Rate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants are saving money on food by growing their own food	0.0%	6.0%	54.8%	39.3%
Family members of the participants are saving money on food by growing their own food.	1.2%	6.1%	54.9%	37.8%
Participants have developed a farm plan.	6.2%	27.2%	53.1%	13.6%
Participants have developed a marketing plan.	7.6%	27.8%	51.9%	12.7%
Participants have sold their products at a farmers market.	11.5%	17.9%	42.3%	28.2%
Participants have sold their products	16.5%	31.6%	26.6%	25.3%

through a CSA (community-supported agriculture program).				
Participants are selling more of their agricultural products.	9.9%	12.3%	44.4%	33.3%
Participants have acquired a business license.	15.2%	44.3%	30.4%	10.1%
Participants are farming part-time.	4.9%	2.5%	60.5%	32.1%
Participants are farming full-time.	20.3%	30.4%	32.9%	16.5%
Participants have hired family members or community members to help them farm.	11.7%	41.6%	33.8%	13.0%
Farming is providing participants with a sustainable source of income.	15.8%	43.4%	35.5%	5.3%
Farming is providing family members of the participants with a sustainable source of income.	16.7%	55.1%	23.1%	5.1%
Farming is providing participants with supplemental income.	6.4%	10.3%	56.4%	26.9%
Farming is providing family members of the participants with supplemental income.	6.5%	23.4%	50.6%	19.5%

Question 17: Consider other benefits that immigrant and/or refugee participants have gained as a result of your program. Rate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants are engaging in more physical activities.	0.0%	3.7%	59.8%	36.6%
Participants are eating greater amounts of healthy food.	0.0%	11.0%	50.0%	39.0%
Participants are interacting more with people in the program.	0.0%	4.9%	50.0%	45.1%
Participants are interacting more with people in the community.	1.2%	6.1%	58.5%	34.1%
Participants are involving family members in their farming activities.	0.0%	7.3%	50.0%	42.7%
A greater amount of healthy food is being supplied to the immigrant and/or refugee communities in the area.	0.0%	12.3%	56.8%	30.9%
A greater amount of healthy food is being supplied to the non-immigrant and refugee communities in the area.	2.5%	13.9%	53.2%	30.4%
Participants have more hope concerning their future.	0.0%	11.7%	59.7%	28.6%
Participants are more comfortable living in the United States.	0.0%	7.8%	64.9%	27.3%

Participants are more calm and peaceful.	0.0%	14.7%	57.3%	28.0%
Participants feel they have more social status in their community.	0.0%	18.9%	60.8%	20.3%
Participants have increased physical health.	0.0%	6.7%	69.3%	24.0%
Participants have increased mental health.	0.0%	8.2%	63.0%	28.8%
Participants have an increased level of energy.	0.0%	15.1%	60.3%	24.7%

Question 18: Consider the immigrant and/or refugee participants in your program. Rate your agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants can understand the material that is being taught.	2.4%	9.8%	74.4%	13.4%
Participants are able to communicate with the instructors and other participants.	3.6%	10.8%	61.4%	24.1%
Participants ask questions.	3.7%	11.0%	59.8%	25.6%
Translators help participants' understand the material that is being taught.	6.1%	6.1%	56.1%	31.7%
Participants interact with each other.	2.4%	1.2%	62.2%	34.1%
Participants receive information concerning opportunities from other participants.	3.7%	11.1%	66.7%	18.5%
Participants receive information concerning opportunities from instructors.	2.4%	4.9%	64.6%	28.0%
Participants receive information concerning opportunities from guest speakers.	5.1%	19.2%	55.1%	20.5%

Question 19: Consider the majority of the immigrant and/or refugee participants in your program. How often do they attend program sessions?

	Response Percent
Rarely (0 – 25% of the time)	3.5%
Sometimes (26% - 50% of the time)	23.5%
Often (51% - 75% of the time)	45.9%
Always (76% - 100% of the time)	27.1%

Question 20: If immigrant and/or refugee participants are not able to attend program activities, what reasons do they give for their absence? (Check all that apply.)

	Response Percent
They have to work.	90.2%
They feel awkward or uncomfortable in the program setting.	6.1%
They have difficulty communicating with others.	15.9%
They don't understand what people in the program are saying.	11.0%
It would be culturally inappropriate for them to attend.	3.7%
They are not interested in program topics.	36.6%
The programs cost too much.	8.5%
They are unaware of program activities.	22.0%
They don't have child care.	46.3%
They don't have transportation.	56.1%
They are sick or a family member is sick.	43.9%
The translators are unable to attend.	13.4%
No reason given.	23.2%

Question 21: Consider the immigrant and/or refugee participants in your program. Rate your agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
Participants feel welcome.	2.5%	1.3%	61.3%	35.0%
Participants trust each other.	0.0%	10.1%	73.4%	16.5%
Participants share rides to program activities.	0.0%	12.8%	56.4%	30.8%
Participants help each other during the program.	0.0%	3.7%	65.4%	30.9%
Participants trust the instructors.	0.0%	7.5%	67.5%	25.0%
Participants work with the instructors to find solutions to issues they have.	0.0%	12.5%	61.3%	26.3%
Participants answer questions during the program.	1.3%	10.1%	65.8%	22.8%
The participants trust the guest speakers.	2.9%	12.9%	72.9%	11.4%

Question 22: How would you describe the majority of immigrant and/or refugee participants in your program?

	Response Percent
The majority are refugees.	54.1%
The majority are non-refugee immigrants.	29.4%
There is an even split between refugees and non-refugee immigrants.	11.8%
I don't know.	4.7%

Question 23: What is the gender of the immigrant and/or refugee participants in your program?

	Response Percent
Less than 25% are women	14.5%
25% - 50% are women	47.0%
More than 50% - 75% are women	32.5%
More than 75% - 100% are women	6.0%

Question 24: What is the age of the immigrant and/or refugee participants in your program?
Check all that apply.

	Response Percent
Less than 15 years old	30.9%
15 – 19 years old	33.8%
20 – 24 years old	36.8%
25 – 29 years old	48.5%
30 – 34 years old	61.8%
35 – 39 years old	75.0%
40 – 44 years old	79.4%
45– 49 years old	72.1%
50 - 54 years old	60.3%
55 years or older	60.3%

Question 25: What is the total annual household income of the majority of the immigrant and/or refugee participants? Check all that apply.

	Response Percent
Under \$9,999	34.8%
\$10,000 - \$19,999	36.2%
\$20,000 - \$29,999	36.2%
\$30,000 - \$39,999	24.6%
\$40,000 - \$49,999	15.9%
\$50,000 - \$59,999	11.6%
\$60,000 - \$69,999	8.7%
\$70,000 - \$79,999	7.2%
\$80,000 or more	7.2%
I don't know.	46.4%

Question 26: What world region do immigrant and/or refugee participants in your program come from? (Check on all that apply.)

	Response Percent
Africa (including Egypt, Liberia, Morocco, South Africa)	50.0%
Asia (including China, India, Iran, Korea, Philippines, Vietnam)	76.8%
Europe (including Belgium, Czechoslovakia, Denmark, France, Germany)	14.6%
North America (including Canada, Mexico, Cuba, Haiti, Jamaica, Costa Rica, Guatemala, Honduras)	46.3%
Oceania (including American Samoa, Australia, Guam, New Zealand)	6.1%
South America (including Argentina, Brazil, Chile, Colombia, Venezuela)	20.7%

Appendix Q

Table A

Technical Training Topics Taught in Immigrant Farming Programs.

Technical Training Topics	Mean¹	Std. Deviation	N
Vegetable production techniques	3.60	1.33	89
Pest, disease, and weed management	3.04	1.36	89
Harvest and post-harvest handling	2.87	1.24	90
Soils, nutrients, and irrigation	2.84	1.23	90
Crop planning	2.74	1.16	91
Introduction to direct marketing	2.64	1.35	88
Identifying markets	2.53	1.22	89
Developing a business plan	2.52	1.27	92
Developing a marketing plan	2.48	1.21	89
Record keeping	2.47	1.19	93
English language skills	2.45	1.70	84
Business management	2.39	1.20	92
Farm equipment use and maintenance	2.37	1.07	90
Financial literacy	2.31	1.23	90
Interacting with individuals in markets	2.30	1.19	84
Fruit production techniques	2.18	1.29	84
Introduction to wholesale marketing	2.11	1.20	88
Legal issues	2.07	1.06	89
Animal/livestock production techniques	1.96	1.35	83
Leadership skills	1.90	1.10	88
Organic certification	1.87	0.98	84
GAP (Good Agricultural Practices) verification program	1.84	0.94	81
Honey production techniques	1.52	0.92	81
Cut flower production techniques	1.46	0.87	83
Landscape plant production techniques	1.45	0.77	83
Grain production techniques	1.31	0.66	83
Aquaculture production techniques	1.20	0.62	80

¹ The mean comes from a four-point scale ranging from '1' as never taught to '5' as six or more sessions taught.

Table B

Well-Being Outcomes of Participating in Immigrant Farming Programs.

Program Outcomes	Mean¹	Std. Deviation	N
1. Participants are interacting more with people in the program.	3.40	0.59	82
2. Participants are involving family members in their farming activities.	3.35	0.62	82
3. Participants are saving money on food.	3.33	0.59	84
4. Participants are engaging in more physical activities.	3.33	0.55	82
5. Family members are saving money on food.	3.29	0.64	82
6. Participants are eating a greater amount of healthy food.	3.28	0.65	82
7. Participants are interacting more with people in the community.	3.26	0.63	82
8. Participants have increased mental health.	3.21	0.58	73
9. Participants are farming part-time.	3.20	0.71	81
10. Participants are more comfortable living in the U.S.	3.19	0.56	77
11. More healthy food is being supplied to the immigrant communities.	3.19	0.64	81
12. Participants have increased physical health.	3.17	0.53	75
13. Participants have more hope concerning their future.	3.17	0.62	77
14. Participants are more calm and peaceful.	3.13	0.64	75
15. More healthy food is being supplied to the non-immigrant communities.	3.11	0.73	79
16. Participants have an increased level of energy.	3.10	0.63	73
17. Farming is providing participants with supplemental income.	3.04	0.80	78
18. Participants feel they have more social status in their community.	3.01	0.63	74
19. Participants are selling more of their agricultural products.	3.01	0.93	81
20. Participants have sold their products at a farmers market.	2.87	0.96	78
21. Farming is providing family members with supplemental income.	2.83	0.82	77
22. Participants have developed a farm plan.	2.74	0.77	81
23. Participants have developed a marketing plan.	2.70	0.79	79
24. Participants have sold their products through a CSA program.	2.61	1.04	79
25. Participants have hired family members to help them farm.	2.48	0.87	77
26. Participants are farming full-time.	2.46	1.00	79
27. Participants have acquired a business license.	2.35	0.86	79
28. Farming is providing participants with a sustainable source of income.	2.30	0.80	76
29. Farming is providing family members with a sustainable source of income.	2.17	0.76	78

¹ Mean based on a four-point scale from '1' strongly disagree to '4' strongly agree.