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Abstract

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Keywords

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Abstract

Agricultural extension in developing countries can be a major source of support for small-scale farmers. In Haiti, the majority of the agricultural population is made up of small-scale farmers. In the past, Haiti's extension system has suffered from various governmental instabilities in the nation. This study sought to (a) determine the information channels small-scale farmers use in the North Department of Haiti, (b) determine the accessibility of quality information as perceived by small-scale farmers in the North Department of Haiti, and (c) identify the perceived barriers to successful production of small-scale farmers in the North Department of Haiti. Results from this study showed Haitian farmers in the North Department gain their information for farming from a variety of sources. The farmers in this study varied in their perceptions of the accessibility of quality information in the area. While some farmers participated in groups with extension services, most farmers had not participated in these groups. Farmers in this study also displayed a lack of trust towards service providers in the region. Farmer perceptions of external factors as barriers towards production illustrated a sense of powerlessness in their production practices. Recommendations include using opinion leaders to engage small-scale farmers and build trust towards service providers.

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Introduction

Haiti has a rich history dating back to times of colonization. In the 18th century, Haiti was known as the Pearl of the Antilles and provided most of the modernized world with coffee, sugar cane, and rice (Drexler, 2008). Haiti's rich agricultural history would come to a stark standstill at the dawn of the Haitian Revolution after which Haiti became the first Free Black Republic (Wucker, 2004). France would not recognize Haiti as a sovereign state until 20 years after gaining its independence. This recognition would come with a tremendous cost to the country. Haiti was forced to repay 150 million francs in restitution to the French state for damages plantation owners incurred during the revolution. Haiti would not fully pay this debt until 1947 (Dupuy, 2010). The debt would set the foundation for future financial difficulties in years to come leading to Haiti's current status as the poorest country in the Western Hemisphere (Drexler, 2008).

Agriculture is a staple labor sector in Haiti. Sixty percent of the population in Haiti is employed in agriculture (USAID, 2011). Agricultural employment can range from production to the market place. Many farmers are considered small-scale farmers. Small subsistence farmers represent 50% of the labor force in Haiti (Eneas, 2010). Specifically, in the Northern region of Haiti, small-scale farmers make up a "vast majority of producers" (Pienaar & Sacks, 2012, p. 28). The most widespread staple crop of Haitian small-scale farmers is maize (Pienaar & Sacks, 2012). For the purposes of this research, *small-scale* denotes having 2 hectares of land or less (United States Agency for International Development, 2011).

Haiti's agricultural sector has experienced difficulties due to trade limitations and the influx of foreign imports. Up through the 1980's, Haiti had been self-sufficient in rice production. Rice was a

low-risk crop for small farmers due to its ease of growth, storage, and preparation for consumption. During this time, rice consumption began to decline (Eneas, 2010). Trade liberalizations caused the tariffs on rice to decrease to 3%, the lowest in the region. Due to this incredibly low tariff on rice, Haiti became able to affordably import rice, pushing local rice producers out of markets and out of business (Eneas, 2010).

Governmental policies have not only affected the production capacities of small-scale farmers, but the linkages between access to research and small-scale farmers. The Ministry of Agriculture, Natural Resources, and Rural Development (MARNDR) in Haiti is currently rebuilding the structure of its extension services within the country's ten departments as part of its Post-Earthquake Strategic Planning (USAID, 2011). The availability of extension services in Haiti differs based on farm location; in addition, individuals with larger farms are more likely to receive extension services (Arias, Leguía, & Sy, 2013). The majority of farms in Haiti are less than two hectares and government-run extension services in Haiti are minimal (Arias et al., 2013), leaving some farmers without consistent support from extension. Currently, many nongovernmental organizations (NGOs) are working to reach farmers some of who may not have had previous access to extension resources (Schuller, 2007).

The presence of NGOs in developing countries can be overwhelming. This is the situation facing Haiti. Currently, Haiti is referred to as the "republic of NGOs" (Kristoff & Panarelli, 2010, para. 1) due to the presence of over 10,000 organizations within the country. NGOs have taken the place of governmental assistance in many sectors, including agriculture (Kristoff & Panarelli, 2010).

Within the agricultural sector, NGOs have started to offer advisory services to small-scale farmers in an attempt to reach rural populations (Carballo, 2010). Lack of coordination among NGOs has created information gaps among rural groups (MARNDR, 2010). This dilemma has left some small-scale farmers to search alone for valuable information to improve their crop production. This study focused primarily on small-scale farmers located in the North Department of Haiti and their sources of information.

Literature Review

The processes of sharing information have been extensively seen within development literature. Information-sharing processes can have an effect on the ways extension services and NGOs meet the needs of small-scale farmers in Haiti. In order to better understand the perceptions of these farmers as they decide which practices to adopt, it is necessary to understand information-sharing processes.

Information Sources Within Networks

Rogers (2003) described the process that individuals progress through to adopt an innovation as the Diffusion of Innovations. Within this theory, Rogers described the most likely source for new knowledge entering a given community. Rogers (2003) stated individuals tend to receive new information from cosmopolite sources as opposed to localite sources. Cosmopolite sources can be described as sources outside a person's immediate connections. These sources are more likely to bring in new information to a network of individuals than would a localite individual due to their access to different experiences and information. Similarly, Granovetter (1973) explained how information flows to new social networks through weak ties. Weak ties are categorized as connections between individuals outside of immediate close social circles. Weak ties bridge gaps between social networks and allow for access to new information. These ties emphasize the ways connections allow for a flow of information to occur between networks that may not have had interaction before.

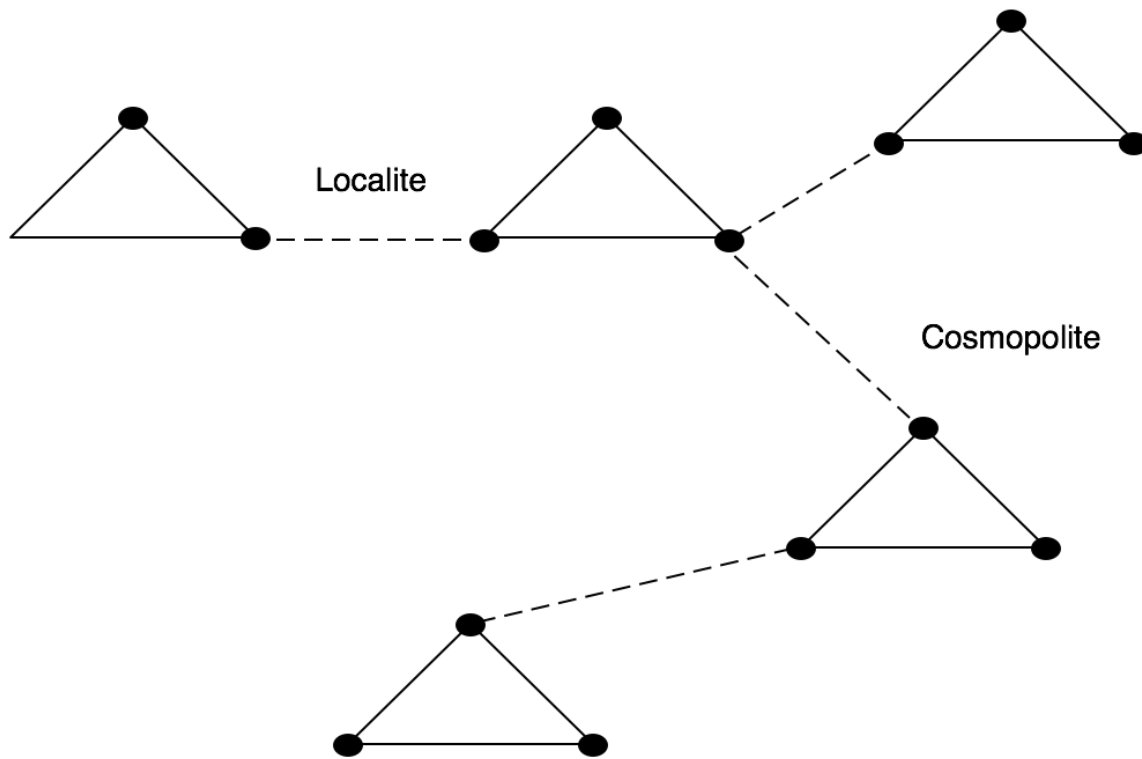


Figure 1. Cosmopolite and localite sources of information as seen through the context of the North Department of Haiti (Rogers, 2003).

Network analysis becomes critical when taking into consideration the experiences of small-scale farmers in developing nations, such as Haiti. Developing nations tend to rely on personal relationships as focal areas of information gathering due to limited availability of information communication technologies (ICTs) (Bello & Obinne, 2012). Various studies in developing nations (Bello & Obinne, 2012; Elly & Silayo, 2013) have found small-scale farmers within these countries rely heavily on personal relationships for knowledge growth in agricultural practices. Through friendships, individuals can become connected with others who may then lead them to new information. NGOs and extension services may act as cosmopolite and weak ties that

help farmers gain new knowledge (Granovetter, 1973; Rogers, 2003).

Advisory Services in Developing Nations

Agricultural advisory services, also known as extension services, have recently been increasing “as a means of promoting agricultural productivity, increasing food security, improving rural livelihoods, and promoting agriculture as an engine of pro-poor economic growth” (Birner et al., 2006, p. 12). These services take on various forms in different countries. Developing countries have recently seen a rise in pluralistic advisory systems, which include services from the public sector, private sector, and NGOs (Anderson, 2008). It is common for governments to favor pluralistic systems in order to diversify the financial

responsibilities to meeting the needs of a nation's farmers (Birner et al., 2006). Pluralistic systems have also allowed for small-scale farmers to have their needs met from sources that may not have been available to them before. A functioning Agriculture Innovations System (AIS) offers benefits to the small-scale farmers (Birner et al., 2006).

It is estimated that 90% of advisory service personnel are located in developing nations (Anderson, 2008). Most of these personnel have been funded through the

public sector. Although the presence of advisory service personnel is greater in the developing world, advisory service effectiveness varies by country and can be based on a variety of factors. Factors include farmer to personnel ratios, funding, governance, and system characteristics (Anderson, 2008). While the successes of agricultural advisory systems may vary within a country, these services are still a great source of advancement for farmers worldwide (Birner et al., 2006).

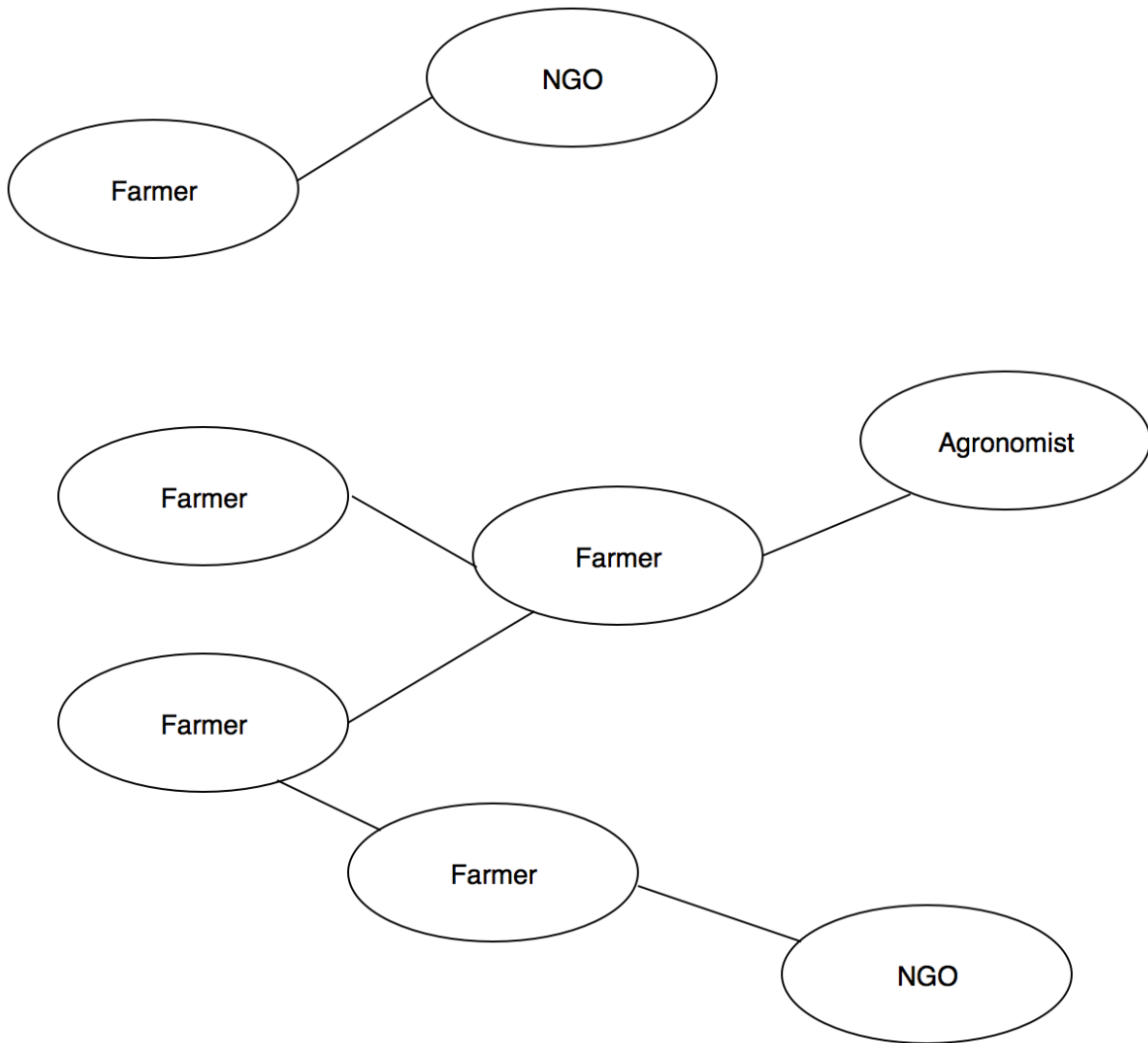


Figure 2. Information sources for Northern Haitian farmers.

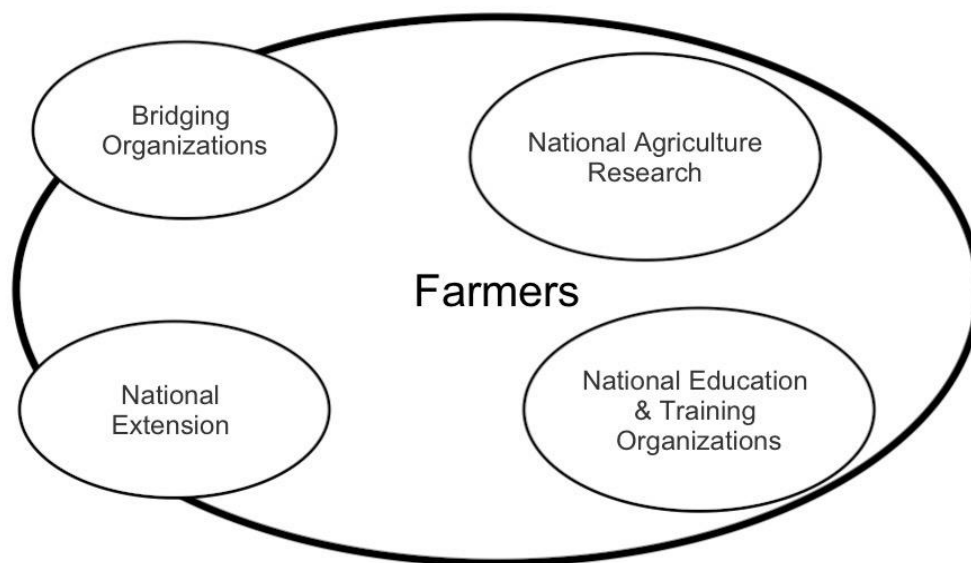


Figure 3. An ideal Agricultural Innovation System (AIS). (World Bank, 2012)

Purpose and Objectives

The purpose of this study was to describe the specific experiences of small-scale farmers in the North Department of Haiti in regards to the sources of information they used to improve their production practices. The following research objectives guided the study (a) determine the information channels small-scale farmers use in the North Department of Haiti, (b) determine the accessibility of quality information as perceived by small-scale farmers in the North Department of Haiti, and (c) identify the perceived barriers to successful production of small-scale farmers in the North Department of Haiti.

Methodology

The design of this research is grounded in interpretive research. Interpretive research is also referred to as constructivism (Creswell, 2013). This study

is founded in the idea that knowledge is relatively formed through repeated experience (Guba & Lincoln, 1994) and is constructed from these experiences. This research study sought to understand the perspectives and experiences of Haitian small-scale farmers in the North Department of Haiti. The data collected in this research was based on interviews and analyzed through thematic analysis.

Qualitative research focuses on understanding phenomena through the perspectives and experiences of others (Merriam, 2009). Meaning is derived through observation and interaction is filtered through the researcher's understanding. Qualitative research seeks to gain a depth of understanding of a particular setting and is usually descriptive in nature (Merriam, 2009).

Qualitative research can be used to describe a variety of research approaches

(Ary, Jacobs, Sorensen, & Walker, 2014). These approaches help the researcher “understand and explain the meaning of social phenomena with as little disruption of the natural setting as possible” (Merriam, 1998, p. 5). The emphasis on particular participants at a set point in time dictates an interpretive qualitative approach (Merriam, 2009). An interpretive qualitative approach is appropriate, since the focus of this study was the experiences of small-scale farmers in the North Department area.

Population

The participants of this study were from the North Department of Haiti, which is located six hours north of the capital by land. Haiti’s major agricultural services are located in the capital of Port-au-Prince, situated in the West Department. The North Department offers the perspective of farmers that are separated by distance from the centrally located services in the capital.

The North Department of Haiti is separated into seven *arrondissements* and within those *arrondissements* are different *communes*. Four *arrondissements* were included in this study based on the recommendation of local agronomists who considered their relative agricultural significance in the North. The *arrondissements* are Acul-du-Nord, Cap-Haïtien, Grand Rivière du Nord, and Limbé. Furthermore, within these areas, farmers were included from the following *communes*: Limbé, Limonade, Grand Rivière du Nord, Milot, and Quartier-Morin.

The population for this study included small-scale farmers. This parameter for small-scale farmers was chosen because these farmers make up the majority of farms in Haiti (Philius, 2013). Including two hectares of land as a parameter allowed the researcher to include more of the population of farmers to help supplement the data.

Although in-depth data on the North Department are not known due to lack of government data, the farmers in this study were involved in various areas of crop production. At the time of this research, the North Department represents 10.2% of the total 1,018,951 farms in the country (Philius, 2013). According to the Ministry of Agriculture, Natural Resources and Rural Development (MARNDR) in Haiti, the largest percentage of farmers (13.8%) are between the ages of 45 and 49 years old (Philius, 2013). The MARNDR (Philius, 2013) reported 96.5% of farmers in Haiti learned their skills on the job as opposed to one-time training (2.5%), technical training (0.6%), or university training (0.1%).

Sampling Methods

Qualitative studies generally employ the use of purposive sampling methods (Ary et al., 2014). When using purposive sampling, researchers select participants who can accurately represent the focus of the study. This method allowed for an increased possibility for the inclusion of varied perspectives in the data (Lincoln & Guba, 1985).

There are several methods that exist within the scope of purposive sampling (Ary et al., 2014). Among these methods is snowball sampling (Ary et al., 2014; Merriam, 1998, 2009). This type of sampling occurs when initial participants are asked to refer other participants that fit within the parameters outlined in the study (Biernacki & Waldorf, 1981). Snowball sampling was beneficial to this particular study due to the lack of a formulated list of all farmers within the North Department. The various complexities within the Haitian culture also made it necessary for relational connections to be built with community members before potential participants felt comfortable enough to agree to an interview. For this particular study, previously

interviewed participants would physically walk the lead researcher, research assistant, and interpreter to the next potential participant.

Sample Size

There are no distinct numerical goals for sample sizes in qualitative research (Ary et al., 2014; Merriam, 1998). Sample size depends on the purpose of the study, the type of data, and resources available (Merriam, 1998). Lincoln and Guba (1985) stated sample size is found at the point where the researcher finds “redundancy” (p. 233). The descriptive nature of qualitative studies leads to smaller sample sizes (Ary et al., 2014). The sample size in this study was selected using a similar method. Similar studies used between 30 and 181 participants (Dang, Li, Bruwer, & Nuberg, 2014; Lwoga, Stilwell, & Ngulube, 2011). The sample size for this study was 35 small-scale farmers consisting of seven farmers from each of the five communes.

Instrumentation

The interview guide used for this study was modified with permission from a similar study (Moore, 2014). The questionnaire was initially developed through a four-step process, which included a literature review of the central topic, draft development using relevant data, feedback from stakeholders, and an Institutional Review. In this study, the questions were modified to fit the context of Haiti. They were then given to a relevant stakeholder in Haiti who has experience with Haitian small-scale farmers in the North to review. The questions were also submitted as per new IRB approval requirements.

The instrument consisted of open-ended and close-ended questions, which created a semi-structured interview. The semi-structured interview method allowed for the participants to add relevant

information that was not originally included in the interview guide. The questions allowed for greater opportunities for the participant to explore concepts close to the central topic (Creswell, 2013). The content covered central themes of type of crops produced, types of agricultural advisory services received, frequency of service, and challenges faced.

Data Collection

Data collection occurred in June and July of 2015. Data were collected through semi-structured personal interviews of 35 small-scale farmers. The interviews ranged from 4 to 15 minutes and were conducted in Haitian-Creole. Although the lead researcher speaks Haitian-Creole, the researcher’s limited technical agricultural vocabulary led to the need of a native Haitian assistant. The assistant was a Haitian national with extensive background in agriculture and in his final year at a local university. The lead researcher traveled to the specified locations with the help of a student agronomist at a local university in Haiti. The agronomy student served as a research assistant.

At the time of the study, the lead researcher, who is not of Haitian descent, found farmers had certain financial expectations based on the lead researcher’s position as a foreigner. Due to the potential influence on farmer behavior and response, the research assistant conducted most of the interviews to avoid this expectation and potential bias (Ary et al., 2014). The interviews were audio recorded using a small device with permission of the participant. Researcher notes were also used to supplement the interview audio.

The interviews were conducted in two steps. First, the interviewer explained the purpose of the study, the rights of the participant, and also answered any questions. There were also instances when the interviewer made casual conversation in

order to build trust before speaking about the research study. After this point, the interviewer began to ask the participant questions from the already developed interview guide.

Data Analysis

Merriam (2009) described the goal of data analysis as making “sense out of the data” (p. 175). The constant comparative method was used to accomplish this task. Glaser and Strauss (1967) outlined the use of the constant comparative method of analysis. This method involves comparing the data to find thematic categories and subcategories (Merriam, 1998). Thus, this method was used for data analysis.

The data were first transcribed and translated from Haitian-Creole into English. A third party, an English professor in Haiti, transcribed and translated the interviews. Once transcribed the interviews were then returned to the lead researcher. The data were stripped of recognizable attributes and were assigned a reference number (e.g. 01, 02, 03). According to Glaser and Strauss (1967), the constant comparative method involves four stages. These stages are “comparing incidents applicable to each category, integrating categories and their properties, delimiting the theory, and writing the theory” (Glaser & Strauss, 1967, p. 105). The data were analyzed using the first two steps of this method as there was no intention to develop grounded theory in this exploratory study.

In order to gain a deeper understanding of the data, the lead researcher read the transcriptions several times to become immersed in the data (Ary et al., 2014). The lead researcher then used line-by-line open coding (Strauss & Corbin, 1990) to begin generating categories. After the initial analysis was completed, the researcher used a spreadsheet to begin tracking the participant interviews and

including relevant quotes from the data. The data were again analyzed for similarities to create new categories. The data were combined to create broader categories. This occurred one last time to create three steps of coding.

Trustworthiness

Lincoln and Guba (1967) suggested a framework for establishing trustworthiness within a naturalistic paradigm. Credibility, transferability, dependability, and confirmability were their criteria for trustworthiness. In order to establish credibility, the data were triangulated using multiple sources of data collection. Researcher notes and audio transcriptions helped to establish credible data. In addition, after the data were transcribed, they were sent to the research assistant in Haiti to review for accuracy. Peer debriefing was also used to establish credibility. This occurred on two levels. The first level was with the other researchers. The second level was peer debriefing with the research assistant after data collection. These times were used to discuss biases, content, findings, and methodological processes. The methods used to establish credibility can also justify dependability. Transferability was provided for this study using thick description. Confirmability was achieved through the audit trail. Notes, reflective processes, and analysis were all documented.

Subjectivity and Bias

Within qualitative research, the researcher is intimately involved with the setting of the study (Merriam, 1998). This interaction creates a certain level of subjectivity in the interpretation of the data. The experiences and the perceptions of the researcher collide with the analysis and the result is a constructed interpretation of the data. The background experiences,

ideologies, and characteristics of the researcher create bias that should be addressed.

The lead researcher has extensive experience in Haiti, specifically through an NGO in Cap-Haitien, Haiti. This work has created a connection that could create a bias towards the interpretation of data. The opinions of Haitians concerning government involvement and assistance are another potential source of bias that could exist. One of the researchers in this study has over 10 years of experience in U.S. Extension. The third researcher in this study has significant experience in Agricultural Education and has recently been involved in capacity development in Haiti.

Results

Themes identified from the farmer interviews were categorized into three major categories: information sources of farmers, farmers' perceptions of access to information, and farmers' perceptions of barriers. Coding was used when including direct quotes from the interviews. Each of the five communes are designated with a letter: Grand Riviere du Nord (G), Limbé (B), Limonade (L), Milot (M), and Quartier Morin (Q). Interviews within these communes were given a number 1-7.

Information Sources of Farmers

Varied information sources.

Farmers indicated various sources for their knowledge of farming practices.

Transmission of knowledge from fathers was evident (2B, 6G, 7G, 1Q, 2Q, 3Q, 4Q, 7Q). *Parental influence* helped to guide farmers in the techniques they used. One farmer stated, "My father was himself a farmer. You know when your father can do something it is transmitted to you as a young boy. You were raised and doing what your father does" (6G). These interactions with parents were formative and continued to

impact their current practices. Other farmers confirmed the strength of these interactions:

Since my childhood I was raised in my father's farm. Every day and after class I would join him in the gardens to help him because I do like farming. Indeed, those techniques are the ones that I am still using today to better work the lands. (2Q)

Some farmers had previous

interactions with service providers in their areas (1B, 1G, 4G, 5B, 6G, 4M, 5M, 1Q, 5Q). The farmers described instances where the service provider, an "agronomist" (1B, 1G, 4G, 5B, 6G, 4M, 5M, 1Q, 5Q), changed the manner in which they worked. One farmer stated, "that agronomist has changed me by providing me new trainings on agriculture" (6G). In describing an instance where water was impacting farming land on mountainsides, one farmer reported the advice from the service provider helped to "prevent that, and it does not happen any more" (5B).

Farmers also stated being their *own sources of knowledge* through experience and each other (5B, 2G, 3G, 5G, 5M, 4Q). Some farmers stated how they learned from their experiences (1B, 3G, 4Q). One farmer reported being the source of information for "young boys" (4Q) who are currently farmers. Farmers also recognized training needs (1B, 3G, 7G). One farmer expressed this by stating, "we are limited in knowledge" (7G).

Farmers' Perceptions of Access to Information

Outsiders and insiders.

Farmers spoke about their knowledge of extension service providers reaching their areas (1B, 1G, 2G, 3L, 4B, 4G, 5G, 5L, 6G). Their interactions with these groups varied. While some were benefitting from extension providers (1B, 1G), others stated they were not "invited" to attend (2G, 3L, 4B, 5G, 5L,

6G). This developed a sense of insiders who received training and outsiders who were not included. When asked about the quality of the trainings, one farmer stated, “I can’t really tell. Some farmers here receive help from them, but not me” (3L). Another farmer stated, “if you are not in the same political movement with them you are not invited to join in” (4G). Another farmer used the word “abandoned” (5G) to describe the lack of service providers. Although some farmers knew of the presence of service providers within their communities, they stated “they aren’t working” (4B) with them. A farmer in Quartier Morin insinuated socioeconomic status influenced the opportunity for training and stated: “the men in this area won’t let me in” (3Q).

Lack of trust in service providers.

Lack of trust in service providers was evident among the farmers. They expressed how government officials would visit their farms while “running for” (3L, 6L) positions. Other farmers described instances where service providers made promises concerning help they had yet to fulfill (1B, 6L, 2G). One farmer stated, “we used to meet with some agronomists but they told us lies” (2G). This farmer later stated once more how Haitian agronomists are “liars” (2G). Another farmer described instances where agronomists would sell pesticides which “did not cause any effects” (2M) on insect damages. This distrust was also expressed in conjunction with governmental ministers who “don’t do their job” (4G).

Farmer Perceptions of Barriers

External locus of control. In several instances farmers indicated how their success in agriculture directly depended on forces beyond of their control. These forces included “God” (1L, 4B, 5G, 7M, 1Q), the “weather” (3L, 7L, 4G, 5G, 1M), government and organizational provisions

(6L, 4G, 5G, 6G, 7B), and thieves (1L, 6L, 6M, 2Q). God was seen as the overarching source of favor in their production. This is seen as a farmer described how “Haiti will perish unless God decides to do something” (7M). When describing the weather, one farmer stated, “sometimes it is beneficial, other times it is not” (3L). Another farmer expressed how the weather impacted where they would “suffer a loss” (4G) on their farms. When describing ways in which the government and their extension services could help to support their production, one farmer stated, “I can’t really tell. It is up for them to decide whatever is best for us” (4G). Farmers expressed how extension service providers could help improve the situation in Haiti and how they would “wait for their help” (7B). When speaking about problems with their production, farmers repeatedly described how thieves would impact their production. Animals and produce were stolen. One farmer stated, “we may hope that we are going to harvest our bananas or yams at the time to sell them, but they are stolen” (6M).

Nature as an adversary. Farmers viewed nature as an adversary to their production. Farmers frequently mentioned the “sun” (1G, 1L, 2B, 2G, 3G, 4B, 4G, 4L, 5B, 6L, 7G, 7L, 2M) as a source of death. The presence of the sun was described with words such as “kill” (5B, 1L, 4L, 6L), “burn” (1L, 3L), “destroy” (1G, 2G), and “problem” (3G, 1L). One farmer stated how “when the sun shows up, our crops are destroyed” (5B). Farmers also indicated loose livestock (1L, 2B, 4B, 6M) and insects (1B, 1G, 2G, 4G, 7G) as adversaries. Animals would find their way onto farms, which caused farmers to suffer losses. One farmer expressed frustration by stating, “sometimes unleashed animals eat a part of our crops” (6M). Farmers also described problems when “some insects like

caterpillars come up and eat all of our manioc's leaves which destroy them" (7G).

Conclusions, Implications, and Recommendations

Haitian farmers in the North Department gain their information for farming from a variety of sources, which is not necessarily by choice. It is evident farmers desired to receive training but were not given adequate training or any training at all. Feelings expressed toward service providers often reflected distrust and powerlessness. For extension, this poses a significant challenge. Programs must seek to provide relevant information while working against cultural mindsets, which emphasize external loci of control.

Farmers gained their knowledge from a variety of sources. Basic knowledge of production was mainly attributed to parental sources passed down from parents to children. This knowledge formed the foundation of their day-to-day practices. Other knowledge was gained from fellow farmers as well as sporadic interactions with service providers in the area, confirming Rogers' (2003) and Granovetter's (1973) assertions that new information is gained through sources from outside familiar social networks. Outside of their immediate experiences and inherited knowledge from family, the information channels were perceived as unreliable and rare.

The farmers in this study varied in their perceptions of the accessibility of quality information in the area. While some farmers participated in groups with extension services, most farmers had not participated in these groups. The farmers, who were not a part of these groups felt as though the groups were exclusive in nature and not open to the general population of farmers in the area. The perceived exclusivity of these groups served as a barrier for farmers who felt as though

quality information for their production could be gained through group membership. The sporadic nature of encounters with extension service providers also made farmers feel as though their access to information was beyond their control. They felt as though their fate was left in the hands of those who held information. In a recent study Roberts, Ganpat, Narine, and Heinert (2015) recommended extension service providers increase partnerships to help provide farmers with more opportunities for gaining knowledge. These stronger linkages are important to increasing the effectiveness of extension services within the North Department of Haiti.

Haitian farmers identified various external factors as sources of barriers in their production. These sources included nature, absent governmental sources, and the sun. These barriers all represent situations which are beyond the control of the farmers in the North Department. The perception of farmers as barriers lying beyond their personal control signifies a distinct view of powerlessness in the face of adversities. These views will be important for extension service providers to understand in order to better serve the small-scale farmers in the North Department. Extension service providers must provide tools and techniques, which will combat farmer perceived powerlessness.

As previous research has stated (Bello & Obinne, 2012), individuals must feel as though sources are credible to receive information. The lack of trust towards service providers among Haitian farmers expresses the need for these programs to work towards regaining the trust of many farmers who feel as though they are being used for purposes other than simply helping them. It is also evident that although programs do exist within the region, some farmers feel as though they cannot benefit from these programs. These perceptions are

fueled by their knowledge of groups, which deny access and participation from certain areas or types of farmers. The information in this study can serve to improve the services provided to smallholder farmers in the Northern Department of Haiti.

The perceptions unearthed in this study help give insight into potential actions for extension service providers. Perceptions of Haitian farmers in the North Department indicate low levels of trust towards extension service providers. If extension service providers desire to help North Department farmers, they must first develop trust (Rogers, 2003). This could be done through using key leaders within the community to serve as opinion leaders. These opinion leaders can bridge distance caused by distrust. Levels of mistrust have been increased by the perceptions of inside and outside groups.

In order to increase trust and open access to information, it would be important to encourage the participation of other members in communities through opinion leaders. In a study by Owolade and Kayode (2012), interpersonal means of communication were found effective for sharing information with farmers. These interpersonal relationships will help develop trust. In addition to these recommendations, it would be important for extension service providers to address the various ways in which farmers may mitigate the effects of external factors such as the sun and lack of water. The barriers, as expressed by small-scale Haitian farmers, reveal a sense of powerlessness even in the face of new information.

The results of this study highlight the need for future studies on the specific programmatic needs of small-scale farmers, self-efficacy of small-scale farmers in the region, as well as the perceptions of service providers in the region. By looking into these three areas, service providers will be

able to tailor programs to meet the needs of farmers in the north. This will be of importance since the Haitian government has expressed the need to increase training in the North Department (MARDNR, 2010). New studies have shown the importance of increasing the livelihoods of small-scale farmers in relation to food security (Carballo, 2010). In the country of Haiti, where food security has long been a concern, focusing on small-scale farmers will positively impact the future of the country.

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