

PREFERRED INFORMATION CHANNELS OF SMALL FARM OPERATORS IN
FLORIDA FOR RECEIVING EDUCATIONAL MATERIAL

By

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To my parents, Larry and Linda Landrum

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Abstract of Thesis Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
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By

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In today's agricultural industry and in rural communities across the country, survival often depends on having an edge on information related to the specific markets, efficient allocation of available resources and use of new or innovative farming practices are essential for small farmer operators (Fedale, 1987, p. 7, ¶ 1). There are more than 49,000 farms in Florida; the majority is classified as small farms (University of Florida IFAS Extension, 2008). The Economic Research Service refers to any farm with less than \$250,000 annual gross sales as a "small farm," (USDA, 2009). The current situation for Florida small farm operators is that the preferred information channels for accessing educational material pertaining to farming practices are unknown. Since many of these small farms are located in rural areas around Florida, reaching the farmers with relevant and timely educational material can be challenging. This study utilized a quantitative approach; a descriptive survey design was used to determine the preferred information channels of Florida small farm operators. The researcher sampled 859 participants for the study. Results revealed certain demographics such as age, operation size, and education level has influence on how small farmers prefer to receive information. Farmers' who earned 50% or more of their gross annual income from

farming efforts were less likely to engaged in the Cooperative Extension Service (CES) statewide small farm programs and farmer to farmer networking. Small farm operators' with more education were more likely to engage in the CES statewide small farms programs and farmer-to-farmer networking. Small farmers' with more diverse operations (i.e., more enterprises within one operation) were more likely to use the CES websites to gain information. Future research should be conducted to better understand he small farm operator population in the state of Florida.

CHAPTER 1 INTRODCUTION

Introduction

“In today's agricultural industry, survival often depends on having an edge on information related to the market, efficient allocation of available resources and use of new or innovative farming practices,” (Fedale, 1987, p. 7, ¶ 1). Of the 49,000 + registered farms in Florida, 90 percent, are classified as small farms (University of Florida IFAS Extension, 2008). The decreasing availability of viable farmland in the state of Florida might be a contributing factor to the overwhelming percentage of small farmers (2007 Census of Agriculture, 2009). Even though the numbers of acres available for production continues to decrease, the total number of farms in the state increased by 8% from 2002 to 2007 (USDA, 2009). As the average size of farming operations continue to decrease and the numbers of small farm operators’ continue to increase, the need for quick and effective education, due mostly to the fact of the great diversity among small farm operators’, has become increasingly important to ensure the sustainability of agriculture as an industry in Florida (USDA, 2009).

Israel (1991) suggested “The effectiveness of delivering extension programs can be increased by matching the information sources and channels used by Extension to those preferred segments of the clientele” (p. 1 ¶ 2). The idea of using different information channels, more specifically different sources and formats to meet the farmers’ educational needs, has become increasingly important in Extension education. With the number of new farms increasing annually in Florida, it is important that Extension programs disseminate educational material in several different channels to meet the small farm owners’ capabilities and preferences for obtaining information

(USDA, 2009). Many small farm operators, who have experienced success, profitability and sustainability, are continually advancing their farming knowledge through different educational venues. Florida small farmers are relying on not just cutting edge farming practices but rather sound farming practices, which have been around for generations, to maximize their farming efforts resulting in sustainable agriculture in this state (University of Florida, 2009).

Background

Small Farms Sector

The most common way to define the small farm sector of agriculture is by annual gross sales. Previous literature defines the small farm as something with annual gross sales of less than \$1,000 or less than \$40,000 (Ingram, 1999). The “minifarm” term has been coined to represent farms with annual gross sales of \$1,000 to \$2,499. Another sector that it is included under the small farms umbrella is called a limited-resource farm, the classification it operates under is annual gross sales of \$10,000 to less than \$20,000 (Ingram, 1999). The USDA’s Economic Research Service (ERS) refers to any farm with less than \$250,000 annual gross sales as a “small farm,” with the only “official” definition being found in the Rural Development act of 1972. The definition, as amended states: “Small farmer means any farmer with gross sales from farming of \$250,000 or less per year,” (USDA, 2009).

A farm typology was developed by the ERS which categorizes farms into fairly homogenous groups for policy development and evaluation purposes. Since farms vary widely in size and other identifying characteristics, ranging from very small retirement and residential farms to establishments with sales in the millions of dollars annually,

several different groupings have been created to accommodate such farm characteristics (USDA, 2009).

Land Grant Universities

Justin Morrill lobbied the federal government to grant land to colleges that would be devoted to teaching practical subjects, such as agriculture, thus the land-grant university was created (McKinney, 2001). As a result in 1862, Congress passed the Morrill Act, giving each state 30,000 acres of federal land for every senator and representative serving the state. States were then charged to parcel the land and sell it, using the receipts to establish a university. These land-grant universities were born out of a need to provide practical agricultural and technical education. Until the Morrill Act, university education did little to reach and teach the layman (Seevers et al., 1997). Land-grant universities were established with the goal of providing public education that focused on agricultural and technical skills, with the idea that “teaching agriculture and mechanics would better serve America” (McKinney, 2001, p.1 ¶ 2). The land-grant university was built with a three-pronged mission: teaching, research and extension. The teaching mission was to provide education that was both useful and focused on the goal of increasing higher education throughout the United States (McKinney, 2001). The goal of research was to bring logical solutions to practical problems faced by farmers across the United States, which was a result of the Hatch Act of 1887. Lastly, the Smith-Lever Act of 1914 added an extension component to the system, which meant universities were given the task of “extending” the research and education to local farmers and citizens in a simple, straightforward manner (McKinney, 2001).

While the University of Florida traces its roots back to 1853 and the establishment of the state-funded East Florida Seminary, University of Florida’s Institute

of Food and Agricultural Sciences (UF/IFAS) traces its roots to the Morrill Act of 1862 (IFAS, 2009). “The 1914 Smith-Lever Act provided federal support for land-grant institutions to offer educational programs to enhance the application of useful and practical information beyond their campuses through cooperative extension efforts with states and local communities” (IFAS, 2009). Dedicated to provide extension education and practical skills, Florida’s governing body for higher education created IFAS in 1964, by reorganizing UF’s College of Agriculture, School of Forestry, Agricultural Experiment Station, and the Cooperative Extension Service (CES) into a single unit (IFAS, 2009).

Currently, “The UF/IFAS is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible” (IFAS, 2009). Since IFAS Extension agents are located throughout the state of Florida, small farm operators receive continue education for their farming venture. Even though the CES is responsible for several sources and formats in which information is disseminated to the small farm sector, the CES is considered to be a reliable and relevant source of information of small farmers’ efforts annually (IFAS, 2009). Additionally, IFAS is the research and development center for Florida’s agricultural and natural resources industries, which has a \$93 billion annual impact, (IFAS, 2009).

“The UF/IFAS research mission is to invent, discover and develop knowledge to enhance the agriculture and natural resources of Florida” (IFAS, 2009). With the mission remaining fundamentally unchanged for nearly 150 years, small farm operators have the opportunity to attend educational workshops on not just sound farming

practices but also new technologies, such as the use of the Global Positioning System (GPS) for the use in precision agricultural practices. Through UF/IFAS' combination of research and extension education, Floridians are able to have the university brought to their local communities in all 67 Florida counties.

Cooperative Extension Service

The Cooperative Extension Service (CES) was formalized in 1914, with the Smith-Lever Act. This act established the partnership between the agricultural colleges and the U.S. Department of Agriculture to provide for cooperative agricultural extension work (USDA, 2009). The CES focuses on the applied dimension of traditional education by extending applied knowledge and problem solving to address individuals issues or problems. The main goal of extension education in the United States has been to meet the needs of its clientele and this overarching focus has not changed in over 100 years. The foundation of extension is responding to priority needs by taking the university to the people (Texas A & M University Extension Service, 2008).

As Extension educators become familiar with various delivery methods, inquiries should be made concerning the usefulness and effectiveness of these methods, more specifically sources and format of the information, type of audience, educational level, skills of Extension agents and their educational goals. These inquiries become even more critical in the context of budget cuts, increased accountability requirement, and the need for efficient use of human and financial resources (Radhakrishna & Thomson, 1996).

The CES has helped small farm operators by providing research and educational programs to help individuals learn new ways to generate income through alternative enterprises (IFAS, 2009). In addition, Extension programs have contributed to improved

marketing strategies and site-specific management skills necessary for agricultural sustainability. Another way in which small farm owners have benefited from Extension efforts is improved productivity through resource management, soil testing, livestock production practices and many other skills (USDA, 2009).

Communication Strategies in Agriculture

Over one hundred years ago, several communication channels were used to convey the message of advancing technology among the agricultural industry. Methods such as “Movable Schools,” were created to travel from town-to-town to educate agricultural communities on farming practices relevant to the time (Seevers, Graham, Gamon, & Conklin, 1997). In addition to “Movable Schools”, agricultural demonstrations were also an effective means of communicating information to the farming community. Usually, these demonstrations consisted of farm visits, which brought neighboring farmers together and demonstrated new technologies as well as overall sound farming procedures at the time. Traveling railroad exhibits were also used in the early 1900s as an effective means for disseminating agricultural innovations across the United States (Seevers, Graham, Gamon, & Conklin, 1997). All of these formats had the common goal of advancing farming knowledge and adoption of new technologies among American farmers of the 1900’s.

In 1920, KDKA was the first radio station to have a daily program in which farm market reports were broadcasted in the mid -West. In addition, Frank Mullen was accredited with being the first full-time farm broadcaster in 1923. He was a member of the National Association of Farm Broadcasters (NAFB), which is dedicated to serving the interests of the agricultural community and has not deviated from its mission in over

89 years (NAFB, 2009). Over time farmers soon became reliant on these radio broadcasts, which contributed to farmers' success in the agricultural industry.

Present-day information channels being used by the Extension Service and other agricultural information providers include but are not limited to: formal classroom education, non-formal education, online tutorials, hands-on workshops, industry-specific conferences, newspaper/magazine articles and individual instruction via face-to-face contact or telephone. Several of these sources are used in conjunction with another to better disseminate information to the agricultural sector, thus meeting their needs more effectively.

Studies by Licht & Martin (2007) and Israel (1991), have indicated that the idea of effective communication between the University and clientele located in Florida communities is still important. An example in which this has been done is the "Agent Performance and Customer Satisfaction" study conducted by Terry and Israel (2004). This type of survey helps to provide two-way interaction among clientele and the planning sector of Extension programs around the state. The feedback from clients helps the CES plan for the future and develop relevant workshops and programs. Programs such as this allow for a continuing collaboration between the University and local communities.

Along with the previous studies, Radhakrishna and Thomson (1996) discussed the importance of what, when, and how information is gathered and used by extension agents. An example of the different types of sources and formats extension agents typically use was another agent in the office, another agent in another county, extension specialists, their immediate supervisor, local news agencies, local business

organizations, state, and federal agencies, and local school teachers and administrators (Radhakrishna & Thomson, 1996). Understanding of this research and the use of information sources will go a long way in improving delivery methods for extension education.

Justification/Rationale

The current situation for Florida small farm operators is that the preferred information channels for accessing educational material pertaining to farming practices are unknown. “Today, more than ever, a wide range of information sources on new or innovative farming practices is available to farmers. However, there is little evidence the increased availability of information sources has been effectively used by farmers,” (Lionberger & Gwin, 1982, p. 1 ¶ 1).

When trying to disseminate information to small farm operators, Rogers’ Diffusion model outlines four major components which contribute to the success of an innovation (Rogers, 2003). The four parts of the model are: innovation, communication channels, time and the social system in which the innovation is being introduced (Rogers, 2003). These components play a major part in the successful dissemination of farming practices to small farmers. Quicker diffusion of valuable information to clientele can lead to higher profitability on the individual farm level along with greater farm efficiency, and to a more sustainable Florida agriculture. The delivery method and format in which information is presented can have an important influence on the impact Extension programs have on clientele (Israel, 1991). With the help of appropriate sources and formats of information, small farm owners will continue to increase their knowledge and contribution to the \$7.7 billion agricultural industry (2007 Census of Agriculture, 2009).

There is a lack of empirical research, however, on how small farm operators prefer to receive educational material based upon demographic attributes such as age, specific industry, and educational level. The study can impact the CES by helping extension educators target specific groups of small farm operators with their preferred information channels. The study's findings will allow extension to refine educational efforts and thus reach more small farm operators. Without help from the Florida land grant universities, in the form of extension programs and private educational consultants, many Florida's small farmers will struggle to contribute to Florida's agricultural industry (University of Florida, 2009).

Problem Statement

The current preferences for sources and formats by which Florida small farmers receive educational material are unknown. Demographic attributes such as age, race, educational level and specific agricultural commodity affiliation may have an effect on the source and format in which farmers prefer to receive educational material. The diversification among the small farm sector warrants further investigation in the variables above, which have an overarching effect on how educational information is disseminated among the small farms sector.

Purpose/Objectives

The purpose of this study was to determine the preferred information sources and formats of small farm owners in Florida for receiving educational information. Additionally, this study examined the relationship between preferred educational material formats/ sources and small farm owner demographic characteristics.

The objectives of this study are the following:

1. Identify demographics of small farm operators in Florida.
2. To determine the preferred format and source of educational materials by Florida small farm operators for receiving information.
3. To examine the relationship between preferred educational material formats/sources and small farm operators demographic characteristics.

Significance of Study

The goal of this study was to determine the preferred information channels of small farm owners for receiving educational material. As a result of this study, both extension educators and other information providers will be able to disseminate educational material more effectively and at a minimum cost. Educators of all types will also gain knowledge of small farmers' demographics, which will facilitate a better understanding of small farmers in Florida. Also, the study will refine the efforts of extension education and better target farmers with specific characteristics. Since many of the extension programs currently operate on a tight budget, timely and cost effective information becomes increasingly important (Licht & Martin, 2007). The last small farm operator study was conducted over 20 years ago, which further demonstrates the need for the research. A knowledge of preferred information channels will not only sustain current small farming operations but will provide researchers with the tools to encourage the expansion of small farms throughout the region, state, nation and globe.

Definition of Terms

1. *Small Farms* – Farms with less than \$250,000 in gross receipts annually (USDA, 2009)

The small farm typology groups are as follows: (USDA, 2009).

Small Family Farms

1. *Limited-resource* - Sales less than \$100,000, total farm assets less than \$150,000, and total operator household income less than \$20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.
2. *Retirement* - Operators report that they are retired (excludes limited-resource farms operated by retired farmers).
3. *Residential/lifestyle* - Small farms whose operators report a major occupation other than farming (excludes limited-resource farms with operators reporting a nonfarm major occupation).
4. *Farming-occupation/low-sales* - Sales less than \$100,000 whose operators report farming as their major occupation (excludes limited-resource farms with operators reporting farming as their major occupation).
5. *Farming-occupation/high-sales* - Sales between \$100,000 and \$249,999 whose operators report farming as their major occupation.

Other Family Farms

1. *Large family farms* - Sales between \$250,000 and \$499,999.
2. *Very large family farms* – Sales of \$500,000 or more.

Nonfamily Farms

1. *Nonfamily farms* -Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers (USDA, 2009).

The researcher chose to operationally define the following words in a manner in which fit the specific study to eliminate any confusion on how the words were used in the study.

1. *Agriculture* – the science, art, or practices of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products (Merriam-Webster, 2009).
2. *Diffusion* –The process in which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003).
3. *Information Channels* – A channel is the means by which a message gets from the source to the receiver (Vergot III, Israel, & Mayo, 2005).
4. *IFAS Extension* – A partnership between state, federal, and county governments to provide scientific knowledge and expertise to the public (UF/IFAS Extension, 2009).

5. *FAMU-CESTA* – Florida Agricultural and Mechanical University/ College of Engineering Science, Technology and Agriculture (FAMU-CESTA Extension, 2010)
6. *Land-grant University* – A land-grant college or university is an institution that has been designated by its state legislature or Congress to receive unique federal support. The land-grant university was built with a three-pronged mission: teaching, research and extension (USDA, 2009)
7. *Sustainability* – 1. Relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged. 2. Of relation to social or economic viability over a long-term period (Merriam-Webster, 2009).

Limitations

Since the diversity of small farmers across the United States currently is even more demographically different than Florida farmers, generalizability of this study to other states is a limitation. Another limitation of the study is bias in the existing data, primarily due to non-response error because of a lack of willingness to participate among some small farm operators. A final limitation is that there is currently not a master list with small farmers contact information available, therefore a limitation of the study is how contact information for the participants was generated

Assumptions

Identifying key assumptions on preferred information channels of small farm owners in Florida is important to understanding the study. The first assumption is that people receiving the instrument will answer honestly, thus this self-reporting method will yield accurate results. Another assumption is that participants of the study will have adequate knowledge of such terms as small farm, educational program and information channels.

Chapter Summary

This chapter discussed the need for further investigation of information channels preferred by small farmers, more specifically sources and formats of educational

information. This chapter also stated the problem, which is the current preferences for sources and formats by which Florida small farmers receive educational material are unknown. A summary of the university land grant system, which was started by the Morrill Act of 1862, was provided, as well as an explanation of the origin of the Cooperative Extension Service, which still exists today. Furthermore, this chapter discussed previous studies, which have been done on preferred information channels of certain industries.

A brief history was provided outlining the origins of Extension's use of communication channels, from the first daily radio broadcast on which farmers relied heavily to the adaptation of using the Internet as an information channel. Additionally, key definitions, limitations, and assumptions were discussed for the study.

CHAPTER 2 LITERATURE REVIEW

Overview

The purpose of this study was to determine the preferred information channels of small farm owners for receiving educational material. To better understand the information acquisition process Rogers' Diffusion of Innovation was used as the theoretical framework for the study. An overview of the four phases of the Rogers' adoption model is discussed in this chapter. The impact and usability of Rogers' Diffusion of Innovation pertaining to extension education, along with any other form of education is also examined. The discussion then turns to a review of relevant research findings pertaining to small farms, communication channels, industry specific relevant studies, and the University of Florida Institute of Food and Agricultural Sciences' (UF/IFAS) efforts.

Theoretical Framework

The theoretical framework chosen for the study was Rogers' Diffusion of Innovations. Researchers recognize that extension clientele use different/multiple information channels during the adoption process (Rogers, 2003). Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003). Rogers stated, "Getting a new idea adopted, even when it has obvious advantages, is difficult. Many innovations require a lengthy period of many years from the time when they become available to the time when they are widely adopted." (2003 p. 1 ¶ 1). Even though obvious advantages exist in the use of technologies, such as online education and non-formal education, the road to adoption can be lengthy in nature. Rogers' Diffusion model has four major

elements: the innovation, communication channels, time, and the social system in which the innovation is being introduced.

Innovations are ideas, practices, or objects that are seen as new to an individual or social system (Rogers, 2003). Rogers states, “Innovations that are perceived by individuals as having greater relative advantage, compatibility, trialability, and observability and less complexity will be adopted more rapidly than other innovations” (Rogers, 2003, p. 16 ¶ 1). When diffusing an innovation these attributes are important to consider when setting realistic time goals for adoption. For example, a grower tests a new variety on a trial plot for a growing season to see the results before converting his/her entire acreage to the variety for the next season. The particular communication channel in which the innovation is diffused can vary depending on audience demographics and other case-specific variables. Even though the particular innovation could be beneficial, if appropriate communication channels are not employed to diffuse the innovation, the adoption process might be slowed or stopped (Rogers, 2003). The third aspect of the diffusion model is the actual time in which it takes an innovation to be diffused to a target audience. Depending on the appropriateness or effectiveness of the communication channel in which the innovation is diffused, the amount of time required to adopt an innovation can vary widely. The social system in which the particular innovation is being interjected has the potential to have a great bearing on how quickly, if at all, the innovation is adopted (Rogers, 2003).

Through methods employed using the diffusion model, Extension education programs and additional sources of farming information can better understand how to effectively communicate with small farm operators’ through individually preferred

information channels. A study conducted by King and Rollins focused on the adoption-innovation process which Extension educators use for planning educational programming (1993). The study employed Roger's Diffusion of Innovation model to better understand programming issues and meet clientele's educational needs (King & Rollins, 1993). The researchers concluded that Rogers and Shoemaker's (1971) generalizations about innovations are still useful for profiling categories of adopters (King & Rollins, 1993). The researchers also concluded that not all potential adopters of new technology use just one source of information when deciding to adopt an innovation. The research reports more often than not multiple sources are used in conjunction with one another to facilitate an adoption of an innovation. Through Rogers' diffusion model a realistic plan for future Extension programming was implemented in Pennsylvania communities (King & Rollins, 1993).

Demographics such as age, education level, and specific agricultural industry can have a strong influence on the adoption rate of innovations in the agricultural industry (King & Rollins, 1993).

The *innovation-decision process* is the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision (Rogers, 2003, p. 170).

Conceptual Framework

Previous studies have identified motivating aspects, economic or personal gratification, and demographic variables as influencing the source and format in which small farmers acquire educational material. These variables as contributing factors to how small farm operators acquire education information are depicted in Figure 1-1. This

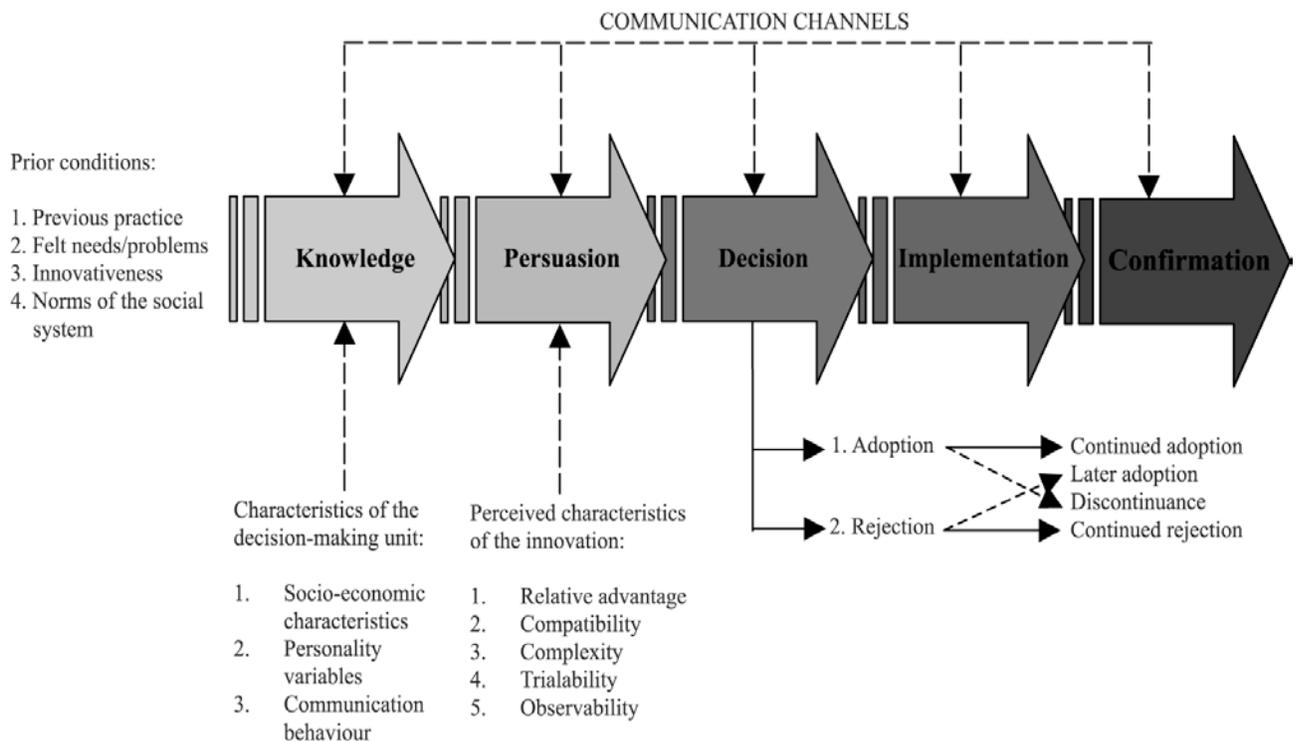
conceptual model represents the information acquisition process of small farm operators, beginning with an individual farmer's motivation and the specific preferred communication channels in which information is disseminated. The small farm operator travels through a series of events conducive to acquiring information in the innovation decision process. Farmer demographics, trustworthiness of source and other confounding factors all influence the operators' decision to implement a change. Even though a farmer might enter the innovation-decision process using a certain information channel it is understood the preferred channel could be replaced with another one while moving through the process, so using the same information channel is not imperative to a successful adoption of an innovation throughout the process

The first phase of the conceptual model is the knowledge stage, or when the farmer first learns about a new innovation. Such things as socio-economic characteristics, personality variables and communication behaviors influence the knowledge stage of the innovation-decision process. These characteristics of the decision-making process can influence the knowledge stage by determining how and where a small farmer acquires information. Many small farm operators are limited by either time or capital, which can have an effect of the knowledge phase.

The second phase of the process is the persuasion stage. In this particular stage, the perceived characteristics of the innovation are considered. The five components include the innovations perceived relative advantage, compatibility, complexity, trialability, and observability. Small farm operator demographics such as age, education level, and industry affiliation have the ability to influence the persuasion stage.

The third phase of the process is the decision stage. Here the decision to either adopt the innovation or reject the innovation occurs. Small farmer characteristics and previous experiences can affect the choice to adopt or reject the innovation. Later, small farmers can decide to either continue adopting the innovation, adopt at a later, discontinue adoption, or continue to reject the innovation.

After the decision has been made to either adopt or reject the innovation, the implementation phase is entered. In this phase the small farmer changes his/her behavior according to the innovation or continues to reject the innovation.



Source: After Rogers (1995)

Figure 1-1. Innovation-decision process. Source: Rogers Diffusion on Innovation, p. 163,

In the final stage of the innovation decision process the farmer confirms the decision to adopt or reject. Here the farmer confirms the innovation has a perceived

relative advantage to adopting or continues rejection of the innovation because it is more beneficial than adopting.

Relevant Small Farms Studies

Research conducted by Ingram (1999), titled “Small Farms Extension Programs in Southern States,” provides an overview of what classifies a small farm. Understanding the motivating factors of why small farmers chose to farm, whether it is farming for economic reasons or a love of the rural lifestyle, provides insight to how regularly these farmers need to receive continued education on farming practices (Ingram, 1999). Ingram concluded, “The tremendous diversity in the agricultural enterprises referred to as the small farms is reflected by the diversity in definitions for this sector of U.S. farms” (1999).

Ingram (1999) makes key conclusions in regards to the small farm sector in the southern states. The first conclusion was small farm extension audiences are diverse within the southern region and even between specific states. Extension programs directed efforts to the general “small farm” audience, which has a gross annual income of \$5,000 up to \$40,000 in most cases (Ingram, 1999). Another identifying factor of the small farm sector was one-on-one contact. Personal interaction was the preferred information dissemination method (Ingram, 1999).

Israel and Ingram conducted a small farm operator study in the North and North central region of Florida in 1989. Based on responses of 382 small farm operators the researchers concluded the sample to be diverse in many attributes such as age, race, education level and number of years farming (Israel & Ingram, 1989). The authors described this particular study to be a ‘snap-shot’ in time of the current small farm operator situation. Israel and Ingram (1989) reported that the small farm segment has a

variety of different educational needs. The results varied by county and whether the county was considered metro or non-metro (Israel & Ingram, 1989). Another finding of the study was “the Cooperative Extension Service was used as a source of information by two-thirds of small farm operators, and bulletins and newsletters are the most preferred way to receive information,” (Israel & Ingram, 1989, p. 45 ¶ 1). The researchers also reported three-fourths of respondents earned less than \$5,000 per year for their farming efforts. Additionally, 30 percent were losing money as a result of their farming efforts. A majority of participants reported a weak or moderate level of agricultural knowledge regarding farming practices, marketing, and business management (Israel & Ingram, 1989).

Communication Channels Among Farmers

“More than ever, a wide range of information sources on new or innovative farming practices is available to farmers. However, there is little evidence that the increased availability of information sources has been effectively used by farmers,” (Lionberger & Gwin, 1982, p. 1 ¶ 2). The researchers found there are currently several different communication channels in which Extension educators, along with private sources of information, use to educate small farm operators. Lionberger and Gwin concluded “that of all the individual communication strategies studied, the one most associated with success is involvement of people in planning programs and strategies. Change-agent success isn't so much a question of how people are involved in the communication/decision-making process; it's more a question of whether they're involved,” (1982, p. 2 ¶ 3).

For the small farm sector specific communication channels can be separated into two categories, traditional educational methods and non-traditional educational

methods. Some of these traditional communication strategies are audio (tapes/CD's), videotape, CD-ROM, letters, memos, reports, newspaper subscriptions, trade publications, one-on-one farm visits, group meetings, and telephone calls. Other non-traditional communication strategies would consist of email announcements, Internet list-servs, online classes/tutorials, and interactive video conferencing (Fastrak Consulting, 1998).

Nudell, Roth, and Saxowsky (2005) concluded such diversity among communication channels allows access to the land-grant system even when people live a great distance from educational centers or research farms. The researchers also found further use of these different communication channels in conjunction with one another would be preferred. The researchers also concluded that this diversification among communication channels will help Extension education efforts as well as those from private sources of information available to small farmers.

In addition, Nudell, Roth, and Saxowsky found “potential information users indicate they are constrained by financial and time pressures, commitments to family and jobs, along with the responsibilities of operating the family farm,” (2005, p. 3 ¶ 4). Finally, the use of online tutorials, web conferencing, and distance learning programs were intended to accommodate non-traditional clients (Nudell, Roth, & Saxowsky, 2005).

Industry Related Research

A study of Iowa corn and soybean farmers sought to find out the preferred information channels of grain farmers in Iowa to better disseminate agricultural information statewide (Licht & Martin, 2007). The researchers found the needs of the farmers were very diverse and although the information needs pertained to just two crops, the farmers preferred several different methods in which to receive different types

of agricultural information (Licht and Martin, 2007). Based on focus group interviews, farmers' preferred mass media channels for general information, but for information on specific applications at the individual farm level, individual interaction with Extension personnel was a key for success. The researchers also found producers preferred to obtain agricultural information through personal consultations to all other forms of communication methods. "Producers like consultations because they provide reliable, timely, and local information specific to their operation and problems," said Licht and Martin (2007, p. 8 ¶ 4). Producers also preferred communication channels that are quick to access, easy to use, and specific to individual farmer information needs (Licht and Martin, 2007). This research suggested depending on which stage the small farm operator is in the innovation decision process, the preferred information channels are going to be different.

Vergot, Israel, and Mayo (2005) conducted a study in Northwest Florida in, to examine the sources and channels of information used by beef cattle producers. This study sought to address the impact of such sources of information on Extension programming in Florida. Given that "the effectiveness of delivering Extension programs can be increased by matching the information sources and channels used by Extension to those preferred by segments of the clientele," (Israel, 1991, p. 2 ¶ 2), Vergot et. al. identified the importance of understanding the sources used by clientele. These researchers suggested that the use of appropriate information channels can facilitate a widespread coverage of the target audience and, subsequently found survey respondents used several different methods of receiving educational material and information within the agricultural community.

Ethnicity, age, and educational level can contribute to preferences for information channels in which to receive educational material by beef cattle farmers. Education, for example, influences how a farmer prefers to receive information because people have different reading levels in which they comprehend or higher levels of technical skill when operating computers for online tutorials. Such demographic factors influence the effectiveness of the information delivery and the use of such sources/ formats. County Extension agents were rated relatively highly overall as a source of reliable information, according to Vergot and colleagues. Similar to Licht and Martin's (2007) findings, Vergot, Israel, and Mayo also concluded that individual consultations were the best method of disseminating information to Extension clientele, assuming the service was being utilized in their respected local communities. These researchers also found that the typical Extension user relies on several information sources and formats to acquire educational information (Vergot III, et al., 2005).

In addition, Radhakrishna, Nelson, Franklin, and Kessler (2003) identified reaching forest landowners with new information as a notable problem in South Carolina. Furthermore, the authors identify several factors that should be considered in the delivery of educational information, such as target audience, educational objective, type of content in the message, and characteristics of the delivery method (Radhakrishna, et al., 2003). The researchers found that newsletters, publications and field tours were viewed as the most useful of all the sources available to the longleaf pine tree farmers. Conversely, the worst rated sources of information among the farmers were the use of short course, formal education, and the Internet. These findings suggest that landowners place value on different information channels and this can create a more

efficient means of communication. In this particular study, the findings reinforced the need to modify existing efforts in educating forest landowners (Radhakrishna, Nelson, Franklin, & Kessler, 2003).

As mentioned before, similar studies have been conducted on other sectors of the agricultural industry besides the small farm sector. In a Tennessee study Jensen, English, and Menard (2009) found the most commonly used source of animal/health information by livestock producers was the local veterinarian. The researchers' findings were similar to Vergot et al. (2005) study which stated one-on-one interaction was the format in which cattle farmers most preferred to receive educational material. Veterinarians can be defined as one-on-one interaction. Jensen, English, & Menard (2009) also suggested "the types of information sources used may be particular to the type of livestock enterprise" (p. 5 ¶ 3). Although one-on-one interaction may be linked to the agricultural sector in which the study was conducted, other demographics such as educational level or age might also be factors in other contexts. Jensen, English, & Menard (2009) also found farmers were managing more types of livestock, such as cows, pigs, horses, and turning to multiple sources for information acquisition. Even though the findings cannot be generalized to other groups, the study demonstrates the diversity of needs not just across industries but also even within specific industries, in this case the livestock sector (Jensen, English, & Menard, 2009).

Cartmell II, Orr, and Kelemen (2006) explored the preferred methods of receiving information by limited-scale landowners, as well as examined the role demographics played on preferred information channels of limited-scale farmers. "If information is to be used, it must be disseminated in a way that best facilitates its use by agricultural

producers,” said Cartmell II, Orr, and Kelemen (2006, p. 2 ¶ 8). The authors also stated that knowing where people look for information is only half the battle for Extension communicators and where people find information is the other half of the struggle (Cartmell II, Orr, & Kelemen, 2006). Interviews of farmers who owned 50 acres or less in Lincoln County, Oklahoma, revealed that direct mail was the preferred method of information dissemination among the small farmers. One-on-one interaction was not as important as it was in the previously mentioned studies; rather mass media techniques were preferred for receiving educational information. The research also found the audience most often sought agricultural information from the Cooperative Extension Service or the Internet (Cartmell II, Orr, & Kelemen, 2006). Demographics, such as age, education level, and ethnicity, had an effect in determining the preferred information channels of farmers (Cartmell II, Orr, & Kelemen, 2006). A conclusion of the study was age of the user is directly affecting the willingness to use technologies, such as the internet. Considering the diversity among groups and personal preferences, information providers cannot assume there is likely one preferred method in which information is disseminated amongst clientele (Richardson, 1995).

Summary

The theory of Rogers’ Diffusion of Innovation offers insight into the dissemination of innovations among all levels of adopters. Such things as the particular innovation, communication channel in which the message is being sent, actual time of the adoption process, and social system in which the innovation is being interjected into all have a bearing on how successful information reaches its intended audience, in this particular study small farm operators in Florida. Research findings indicate many sectors of agricultural prefer a one-on-one method of receiving education information. This can be

achieved from farmer-to-farmer interactions, farm visits, telephone calls, and so forth. With the advance of technology, these communication channels will become better developed and will be relied on more in future of the agricultural industry.

In conclusion, information sources, demographic characteristics, and information formats can affect the source/format of the diffusion of educational material, whether the providers be from either the Extension service or private educational source. The conceptual model also depicts the farm operators' motivation behind choosing to seek information, which could be either economic reasons or simply for personal gratification.

CHAPTER 3 RESEARCH METHODS

Introduction

This study was designed to determine the preferred information channels of Florida small farm operators for receiving educational material. The researcher sought to investigate the relationship between demographic variables and the source/format in which small farmers receive educational materials. To achieve the purpose of the study, the following objectives are investigated:

1. Identify demographics of small farm operators in Florida.
2. To determine the preferred format and source of educational materials by Florida small farm operators for receiving information.
3. To examine the relationship between preferred educational material formats/sources and small farm operators' demographic characteristics.

This chapter describes the descriptive survey design and the process used to address the study's objectives. The researcher defined the population and master list from which the sample was drawn. The instrumentation that was used in the study was also discussed in this chapter. Validity and reliability and the procedures in which the instrument was administered were also discussed. Finally, data analysis techniques were outlined and elaborated upon.

Research Design

This study utilized a quantitative approach. Quantitative research typically aims to classify features, count them, along with constructing statistical models in an attempt to explain what is observed (Ary, Jacobs, Razavieh, and Sorenson, 2006). More specifically, the researcher chose to use a descriptive survey design approach to ascertain the preferred information channels of Florida small farm operators. Ary,

Jacobs, Razavieh, and Sorenson (2006) defined the descriptive research as using instruments and questionnaires to ascertain information, which can be used to generalize characteristics or measure attitudes and opinions of a group of subjects (p. 31). In addition, these “designs result in a description of the data, whether in words, pictures, charts, or tables, and whether the data analysis shows statistical relationships or is merely descriptive,” (Washington State University, 2009, p. 56). A research team used a mailed questionnaire to collect information on small farm operators’ preferred information channels, as part of a larger study of small farm operations. Ary, Jacobs, Razavieh, and Sorenson define validity as “the extent to which an instrument measured what it claimed to measure,” (2006, p. 243, ¶1). A survey research design approach should address five major types of validity (Messick, 1995): face, content, construct, concurrent, and predictive. The research team used a panel of experts to address face validity and also used a pilot study to help ensure content and construct validity. The research team chose to use statistical procedures to create internal validity among concurrent and predicative validity as well (Messick, 1995).

Population and Sample

The population included in the study is 49,000+ small farm operators in Florida’s agricultural industry (2007 Census of Agriculture, 2009). The sample was drawn from the following workshops/programs held around the state of Florida:

1. Agri-tunity Regional Small Farm Conference in January 2007
2. Volusia County Small Farm mailing list 2007
3. Marion County Small Farm mailing list 2007
4. Brevard County Small Farm mailing list 2007
5. FAMU Regional Goat Conference in 2007
6. South West Florida, Working Group members in 2007
7. Local Food Guide, published in Alachua Co. in 2007
8. UF/IFAS Organic Production Field Day in Fall 2006
9. Hillsborough Co. Small Farm Regional Conference in 2006

The research team then reduced the number down to 856 usable addresses. Duplicates, non-participants, farmers who were known to have ceased farming efforts were removed from the master list. The research team considered this procedure to be valid in the sense demographic information was compared and checked for similarities/differences among the sample and the 2007 Census of Agriculture demographic information (Gaul et al, 2009). A review by this researcher found the demographic information of the survey respondents to be closely related to the 2007 Census of Agriculture. As a member of the research team, this researcher assisted by inputting 150 of the 304 returned surveys.

Instrumentation

The researcher used an instrument designed by the small farms focus team, lead by program coordinator Robert Hochmuth and Dr. Danielle Tredwell. Additionally, Dr. Glenn Israel served as the survey director. The 12-page questionnaire was composed of 41 questions and included Likert-scale, multiple choice, and open-ended question types. These questions allowed the researcher to determine demographic information on the small farms group. Additionally, opinions and barriers were also measured through the questionnaire.

The instrument design team paid close attention to the overall appeal of the instrument in the design phase. For example, the pictures on the front cover of the survey were carefully selected and arranged. The research team also used the University of Florida and Florida A&M University logos in order to create a sense of legitimation among participants. A simple format and general organization of questions were taken into consideration in the design process. Dillman, Smyth, and Christian

(2009) suggested the overall visual appeal, wording, and format in which the instrument is designed has a significant bearing on subjects' willingness to participate.

The research team submitted a proposal to conduct this study to the University of Florida Institutional Review Board (IRB-02) before any collection of data occurred. Once the study was approved by the University of Florida IRB-02, a pilot test of 18 small farm operators in Live Oak, FL and Ocala, FL was conducted. The goal of the pilot test was to minimize the two most common types of survey error, which are defined as measurement and non-response errors (Dillman et. al., 2009). The research team implemented changes suggested by the two pilot study groups into the final draft of the survey (Gaul et. al., 2009).

“We hope that you will enjoy completing this survey about your farm or ranch and we appreciate your help,” was used by the research team to provide encouragement and let the participants know his or her response was valuable. The first section of the survey addressed whether or not the farmer was indeed currently farming and how many years/acres were currently in production (See Appendix A).

The second section of the instrument collected information on reasons for farming in order to identify which reasons were most important to small farm operators. Thirdly, a section was included to also gain knowledge on what specific crops were being produced and the diversity of each production operation. The specific resources in which small farm operators were receiving educational information and how reliable those sources were perceived to be was the fourth section of the instrument.

Lastly, 13 demographic questions were used to collect information on years of farming experience, current occupation, age, race, educational level and on/ off farm

income levels. The researcher used these specific demographic questions to determine whether relationships existed between small farmers' characteristics and specific sources/formats of receiving educational material. In addition to determining the preferred information channels of small farm operators, the instrument was also designed to provide a "snapshot" of small farm owners at a particular point in time, 2008.

Dillman, Smyth, and Christian (2009) identified four types of errors, which must be addressed in research. Coverage error is defined as "all members of the population not having a known, nonzero chance of being included in the sample and from those excluded differing from those included," (p.19). In this study no measure of coverage error existed but it should be noted that the available list included only 856 of the 49,000 small farm operators in Florida. The second type of error is sampling error. This type of error occurs when results from only some, rather than all, members of the population are reported (Dillman, Smyth, and Christian, 2009). In this study sampling error was not an issue because all of the potential participants were given the opportunity to respond to the survey. Non-response error was defined, as "people who do not respond are different in a way that is important to the study from those who do respond," (p.19). Both coverage and non-response error was addressed in the study by comparing 2007 Census of Agriculture demographic data to the demographic data from the respondents. Finally, measurement error refers to "an inaccurate answer to questions and stems from poor question wording, survey mode effects, or aspects of the respondent's behavior," (p.19). The research team worked to minimize measurement error by using a pilot test for the study. The researcher addressed reliability and validity through minimizing these

four common types of errors, through visual survey design, creating a master list of small farm operators, and specific question formatting/ wording.

Data Collection

Following the pilot test, the data was collected following the procedures recommended by Dillman, Smyth, and Christian's Tailored Design Method (2009). The overall premise of the Tailored Design Method is to make the participants feel that they are important to the study rather than just a survey number (Dillman et al., 2009). The research team used principles of Dillman's Tailored Design Method to design personalized correspondence for the participants of the study, including use of real stamps (instead of business correspondences) and signatures that were signed in blue ink. The research team used multiple contacts as a method to maximizing the number of participants and also as a method of reducing non-response error (2009). The data collection procedures for the mail survey include a pre-survey letter, which was mailed on July 18, 2008, alerting participants to be on the lookout for the letter and actual instrument (See Appendix B). Following the pre-letter, the instrument was sent with a cover letter conveying the importance of the survey, which was to be returned by July 25, 2008. To address non-respondents, the research team sent a reminder post card on August 1, 2008 in order to increase the response rate and reduce non-response error. Finally, a second survey accompanied with another cover letter, specifically tailored to non-respondents and again conveying the importance of the study was mailed on August 21, 2008 to the population.

Data Analysis

The researcher used the Statistical Package for the Social Sciences (SPSS) software to analyze the data. The researcher used a four step process for analyzing the

survey data collected. Step one was to calculate descriptive statistics on each variable such as age, acres producing, race, education level, etc. Frequencies were also used to report how often small farm operators use a source of information and the specific format in which the educational material was transferred. “With descriptive statistics you are simply describing what is or what the data shows,” said Trochim (2006). Descriptive statistics provide simple summaries about the sample and the measures. The second step was to create cross tabulations or correlation coefficients between variables that were under investigation in the analysis. An example of this is a cross tabulation between age of the farmer and the format in which they prefer to receive educational information. These types of cross tabulations and correlations were used to describe the relationships both, positive and negative, that lie in specific sources/formats of information and demographics. In addition, Trochim defined correlation as “As a single number that describes the degree of relationship between two variables” (2006, p. 4 ¶ 3).

The third step in the analysis was to conduct a factor analysis of the set of information sources and formats. A factor analysis reveals patterns of interrelationships among variables and detects clusters of variable in which contain variable that are strongly intercorrelated (Agresti & Finlay, 2009). The final step in the analysis procedure was to compare demographics to specific groupings in the data using regression analysis.

Chapter Summary

This chapter described the descriptive survey process, which was used to complete this research. The population of small farm operators was defined along with the procedures the researcher used to gather the survey sample. The researcher

described the instrument, which was designed to identify the small farm operator demographics and measure the source/ format in which educational material acquired.

The researcher addressed Dillman, Smyth, and Christian's (2009) four threats to the validity and reliability of a study. The research modeled procedures after the Tailored Design Method (Dillman, Smyth, & Christian, 2009). Finally, the researcher discussed the use of frequencies, descriptive statistics, and correlations to examine relationships among demographic characteristics and source/ format in which educational information is acquired.

CHAPTER 4 RESULTS

Introduction

The purpose of this study was to determine the preferred information sources and formats of small farm owners in Florida when receiving educational information. This research aimed to determine the relationship, if any, of communication methods and user demographics such as age, education level and gender. In order to meet the purpose of this study, the following objectives were investigated:

1. Identify demographics of small farm operators in Florida.
2. To determine the preferred format and source of educational materials by Florida small farm operators for receiving information.
3. To examine the relationship between preferred educational material formats/sources and small farm operators' demographic characteristics.

This chapter presents the findings of the study from the results of the survey questionnaires. The sample for this study consisted of 859 Florida small farm operators. At the conclusion of the data collection procedures outlined in Chapter three, 304 (35.3%) of small farmers responded. This chapter presents the demographic characteristics of the population studied and the results of the analysis of preferred information formats/sources. Cross-tabulations were computed to determine if relationship existing among varying small farmer demographics and preferred communication channels followed by regression analysis results.

Objective One: Identify Demographics of Small Farm Operators

The questionnaire contained 13 demographic questions that asked general information about the respondent. These demographic questions addressed age, gender, education level, and income level of their small farm. Descriptive statistics and

frequency counts were calculated for applicable demographic questions in order to answer the objectives of the study. Easton and McColl (2009) define frequency as “a record of how often each value (or set of values) of the variable in question occurs.”

Age of Respondents

The mean age of the small farm operator was 58 years old with a standard deviation of 11.5 years. The group with the greatest amount of participants was that of 51-60 years of age (n=93), 30.5% of the sample (Table 4.1). Conversely, the group with the least amount of participants is the 21-30 year range (n=2) only .6% of the sample.

Table 4-1. Age of participants (n=304)

Category	Number	Percent
21-30	2	.6
31-40	15	4.9
41-50	66	21.7
51-60	93	30.5
61-70	79	25.9
71-80	46	15.1
Over 80	3	.9

Farming Years of Experience

Small farmers reported between 0 and 65 years of experience operating a farm or ranch. The largest group represented was the 6-10 years of experience group, with 21.8% being represented in the sample (Table 4-2).

Table 4-2. Small farmers' years of experience farming

Number of years farming	Number	Percent
0-5	45	17.2
6-10	57	21.8
11-15	32	12.2
16-20	34	13.0
21-25	22	8.4
26-30	20	7.6
30+	51	19.5
Total	261	100.0

The smallest group represented by the sample was the 26-30 years of experience, with 7.6% of small farmers reporting this experience level.

Education

The small farm operators were asked to report their education level in the survey. Small farmer operators who had less than a 12th grade education represented 2.6% of respondents (Table 4-3). Operators who had a high school education totaled to 12.5% of the population studied. Following participants' who had a high school education were 26.6% respondents reporting having some collage training. Additionally, 57% of small farm operators' reporting having at least a two-year degree or some type vocational certificate from an institution. With 20.1% of small farm operators reporting having a four year degree from an institution, either a Bachelors' of Science or a Bachelors' of Arts. Additionally, 24.3% (n=74) of small farmers reported obtaining some sort of professional or graduate-level training.

Table 4-3. Participants' education level

	Number	Percent
Less than 12 th grade	8	2.6
High School diploma	38	12.5
Some college	81	26.6
2 year. degree	40	13.2
4 year degree	61	20.1
Professional school	74	24.3
Total	302	100.0

Gender

Of the 304 respondents who reported their gender 66.1% were male and the remaining 33.9% were female small farm operators (Table 4-4).

Table 4-4. Participants' reported gender

	Number	Percent
Female	103	33.9
Male	201	66.1
Total	304	100.0

Race

Of the 304 respondents 93.8% classified themselves as white (Table 4-5). The second highest ethnic group being represented was African American at 2.3%. The remaining 3 groups, which were American Indian/Alaskan Native, Asian, and Other all had a 1.3% overall share of the percentage.

Table 4-5. Respondents' race

	Number	Percent
American Indian & Alaskan Native	4	1.3
Asian	4	1.3
Black	7	2.3
Other	4	1.3
White	285	93.8
Total	304	100.0

Gross Income

Of the 280 responses from the questionnaire 53.2% small farm operators reported grossing \$0-10,000 dollars in sales in 2007 (Table 4-6). For the category \$10,001-25,000, 14.2% reported having gross sales in this range. The next category was \$25,001-50,000, and 10.6% reported gross sales in 2007 in this range. This is followed by 7.1% of small farmer operators with sales of \$50,000-\$100,000 and 8.5% with sales of \$100,001-\$250,000. A total of 6.4% of small farm operators reported having over \$250,000 in gross sales in 2007.

Table 4-6. Gross sales of small farm operators in 2007

	Number	Percent
\$0-10,000	149	53.2
\$10,001-25,000	40	14.2
\$25,001-50,000	29	10.6
\$50,001-100,000	20	7.1
\$100,001-250,000	24	8.5
Over \$250,000	18	6.4
Total	280	100.0

Farm Income

Respondents were asked if more than 50% of their income resulted from farming efforts, and 42% reported making less than 50% of their income from the farm (table 4-7). The other 58% reported more than 50% of their income was a result of their farming efforts.

Table 4-7. Farmers with 50% of income resulting from farming efforts

	Number	Percent
Farm income less than 50%	128	42%
Farm income greater than 50%	176	58%
Total	304	100%

Number of Enterprises

Participants reported the number of enterprises per small farm operation. The operations ranged from having one enterprise to eleven. Having just one enterprise was

Table 4-8. Number of enterprises per small farm

Number of enterprises	Number	Percent
1	106	30.7
2	79	22.9
3	54	15.7
4	25	7.2
5	15	4.3
6	10	2.9

Table 4-8. Continued

7	4	1.2
8	5	1.4
9	1	.3
10	4	1.2
11	1	.3
Total	304	100.0

the most common and was reported by 30.7% of respondents (Table 4-8). With 66% of small farmers reporting having three enterprises or less in their operation, in this particular sample the number of operations decreased as enterprises increased.

Mix of Enterprises

The number of small farm operators in which had a mix of enterprises totaled 45.1% of the sample population. The other 54.9% reported not having a mix of enterprises in their operation. In this particular case a mix of enterprises is defined by having different types of enterprises (i.e., row crops and livestock).

Table 4-9. Farmers' who have a mix of enterprises

	Number	Percent
Does not have a mix	163	54.9
Does have a mix	134	45.1
Total	297	100.0

Farm Size

The participants were asked how many acres they currently had in production. Of the 297 responses, 34% reported having one to ten acres currently in production (Table 4-10). The sample ranged from 1-10000 acres, with 67% reporting having less than 50 acres in production currently. The average small farm size of the respondents was 174 acres, with a standard deviation of 842 acres (Table 4-10).

Table 4-10. Acers in current production

	Number	Percent
1 to 10	101	34.0
11 to 20	51	17.1
21 to 30	19	6.3
31 to 40	13	4.3
41 to 50	15	5.0
51 to 100	45	15.1
101 to 250	26	8.7
251 to 500	12	4.0
501 to 1000	5	1.6
1000 or more	10	3.3
Total	297	100.0
Mean size of farm in acres	173.7	
Standard deviation in acres	842.0	

Objective Two: To Determine the Preferred Educational Material Formats/Source and Small Farm Operators Demographic Characteristics

The participants were asked which Cooperative Extension Service (CES) they typically choose for obtaining information regarding their operation, either UF-IFAS

Table 4-11. Frequency count of respondents' education attainment and choice of extension service

Extension Service used	Respondents' Educational Attainment						Total
	Less than 12 th grade education	High school diploma or GED	Some college but no degree	2 Year degree or vocational program	Complete four year degree (BA or BS)	Graduate or professional school	
Both	2	7	10	4	7	13	43
CESTA	0	2	3	1	1	1	8
IFAS	4	18	49	22	46	48	187
None	2	11	19	15	7	12	66
Total	8	38	81	42	61	74	304

Extension, FAMU-CESTA, neither, or both. Of the responses 61.8% used the UF/IFAS CES for educational information (Table 4-11). Of the small farmer sample population 2.6% reported using the service provided by FAMU. Along with 14.1% of participants

reported using both UF-IFAS Extension and FAMU-CESTA. With 21.7% reported not using either of the Extension services for information acquisition of any kind. The research found 78.2% of respondent reported using some kind of University Extension Service (UES).

A frequency count was computed between the previously discussed education level of respondents and the particular UES small farm operators' use. The frequency count revealed 88% of participants obtaining a four-year degree are the most likely to take advantage of the University Extension Service in the form of seeking educational information when needed (Table 4-11). The second group most likely willing to seek information from the Extension service was small farm operators having professional school training, which was 83%. This 83% was generated from adding both, IFAS, and CESTA sections. The group least likely to use the Extension Service as an information resource was the group having a two-year degree or completed other vocational degree program, which was 69%.

Frequencies count between the University Extension Service participants typically uses and the relationship between respondents' gender were computed. The findings showed 61.1% of males typically used the University of Florida Extension Service; additionally 2.5% of males used the Florida Agricultural and Mechanical University Service (Table4-12). Of the small farm respondents 62.2% of female small farm operators reported using the University of Florida Extension Service. Conversely, 2.8% of female small farm operators turned to the Florida Agricultural and Mechanical University Extension Service for information. In short, there was little differences in the use of CES between men and women.

Table 4-12. Frequency count of university extension service that respondents typically use by gender

Extension Service Used	Female	Male	Total
Both	14	29	43
CESTA	3	5	8
IFAS	66	121	187
None	23	43	66
Total	106	198	304

A frequency count between the University Extension Service used and respondents reported race. The findings suggest white and non-white respondents reported preferring the UF-IFAS/ Extension Service. Of the 289 participants who reported being of white decent, 61.9% reported using the UF-IFAS Extension service as the preferred service in which they receive information (Table 4-13). Also, 2.7% of white respondents reported using FAMU as their preferred Extension Service provider. With 13.1% reported using both services and 22.1% reported using neither service to obtain educational information on farming and farming practices.

Table 4-13. Frequency count of university extension service that respondents typically use by race

Extension Service Used	Non-White	White	Total
Both	5	38	43
CESTA	0	8	8
IFAS	8	179	187
None	2	64	66
Total	15	289	304

Patterns of Preferred Information Formats/Sources

Another part of the analysis involved using factor analysis to identify patterns of preferred formats/sources and to create variables representing trends among the items for the question 'Have you ever participated in or used any of the following UF-

IFAS/FAMU Extension programs, activates and resources’ and ‘In the past 2 years, how much have you rely on the following sources to get information about farming or ranching.’ Finally, a factor analysis is used to reduce a large number of variables to a smaller number of variables, such as the factors of the analysis (Agresti & Finlay, 2009).

The factor analysis revealed seven themes and groupings of different sources/formats in which small farm’ operators prefer to receive education material (Table 4-14).

Table 4-14. Variable themes of preferred information formats/sources

F1=	One-on-one/attending workshops
F2=	Website(s)/technology
F3=	Traditional print/county meetings
F4=	Internet/TV/Radio programs/list serve e-mails
F5=	Other farmers/family
F6=	Ag business professions/lender/USDA agencies
F7=	USDA Agencies/IFAS events

The process of creating the mean scores for variables F1-F7 was of that of the following: each item of the survey questions ‘Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activates and resources’ and ‘In the past 2 years, how much have you rely on the following sources to get information about farming or ranching’ was subjected to SPSS’ factor analysis procedure, using an oblique rotation. Once the factors in which very significant a function was identified, factor loadings were used to generate the mean scores for each theme for all 304 respondents.

The factor loadings were used to determine which items of the survey question ‘Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activates and resources’ were grouped together to form the first through third

Table 4-15. Factor loading and explained variance for 'Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activates and resources?'

Component	Eigen value	Percent Variance	Cumulative Percent
One-on-one/attending workshops	3.270	29.726	29.726
Website(s)/technology	1.439	13.086	42.812
Traditional print/county meetings	1.137	10.339	53.150

Factor Loadings

	One-on-one/attending workshops	Websites/technology	Traditional print/county meetings
Multi-state or national conferences & workshops	.694	.197	.186
Regional & State-wide meetings, workshops, etc.	.661	.109	-.040
One-on-one extension visits to the farm	.633	-.085	-.120
Educational farm tours or farmer networking	.617	-.057	-.255
FAMU-CESTA cooperative extension website	.057	.751	.102
Florida small farms & alternative enterprises website	.008	.736	-.194
UF-IFAS solutions for your life website	.123	.649	.062
Local county extension websites	-.193	.560	-.554
Local county extension newsletters	.079	-.009	-.749
Extension information in 3rd-party newsletters or magazines	.011	.060	-.713
County meetings, workshops, conferences, or field days	.270	-.078	-.531

themes. The bolded numbers in Table 4-15 represent strong loadings of an item on the component. Additionally, note the Eigen values of all three components were all over 1.000, and the cumulative percentage of the three components was above 50%.

A correlation matrix of the components was computed to determine if any significant relationships existed among the themes. A positive correlation with strength

of .194 was found between the theme 'one-on-one/attending workshops' and websites/technology (Table 4-16). Also, a negative correlation was found between the theme, 'one-on-one/attending workshops' and 'traditional print/county meetings' and theme 'website(s)/technology' and 'traditional print/county meetings'. This suggests component one and two might be used in conjuncture together but three tended to be a stand-alone theme of communication.

Table 4-16. Component correlations for 'Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activities and resources?'

Component	One-on-one/attending workshops	Website(s)/technology	Traditional print/county meetings
One-on-one/attending workshops	1.000		
Website(s)/technology	.194	1.000	
Traditional print/county meetings	-.280	-.183	1.000

A factor analysis procedure also was used to determine which items of the question 'In the past 2 years, how much have you rely on the following sources to get information about farming or ranching' were grouped together thus forming the variables for the fourth through seventh themes. Again, the bolded numbers in Table 4-17 represent strong loadings of an item on the component. Additionally, note the Eigen values of all four components were all over 1.000, and the cumulative percentage of the four components was above 50%.

A correlation matrix of components was computed to determine if any significant relationships existed among the themes. The matrix suggest that if a small farmer is using theme four, which is 'Internet/TV/Radio programs/list serve e-mails' he or she is more likely to use theme 'Ag business professions lender/USDA agencies' and 'USDA Agencies/IFAS events'. Conversely, if a small farm operator is using theme 'Other

Table 4-17. Factor loading and explained variance for 'In the past 2 years, how much did you rely on the following sources to get information about farming or ranching?'

Component	Eigen value	Percent Variance	Cumulative Percent	
Internet/TV/Radio programs/list serve e-mails	4.298	30.697	30.697	
Other farmers/family	1.665	11.892	42.589	
Ag business professions/lender/USDA agencies	1.308	9.344	51.933	
USDA Agencies/IFAS events	1.090	7.783	59.716	
Factor Loadings				
	Internet/TV /Radio programs/ list serve e-mails	Other farmers/family	Ag business professions lender/ USDA agencies	USDA Agencies/ IFAS events
Rely on IFAS/CESTA internet classes	.898	-.007	-.031	-.031
Rely on IFAS/CESTA internet list-servs	.811	-.070	-.150	-.196
Rely on IFAS/CESTA interactive video conferences	.784	.037	.212	.108
Rely on TV or radio with IFAS/CESTA hosts	.601	.006	.076	-.181
Rely on other farmers or ranchers for information	-.111	.791	-.092	-.067
Rely on commercial publications for information	-.238	.714	-.050	-.257
Rely on family members for information	.285	.589	.000	.229
Rely on farm organizations for information	.090	.524	.296	-.152
Rely on lenders for information	.053	-.091	.788	.044
Rely on certified crop advisors or consultants	-.005	.039	.733	.175
Rely on agribusiness representatives for information	-.059	-.035	.617	-.295
Rely on USDA agencies for information	.167	.158	.414	-.378
Rely on IFAS/CESTA events	.045	.060	-.067	-.816
Rely on IFAS/CESTA internet websites & printed pubs	.109	.052	.007	-.733
Rely on IFAS/CESTA Extension agent	.172	.047	.068	-.696

farmers/family' he or she is less likely to use theme 'Ag business professions lender/USDA agencies' and 'USDA Agencies/IFAS events' as a means of communication.

Table 4-18. Component correlations for 'In the past 2 years, how much did you rely on the following sources to get information about farming or ranching?'

Component	Internet/TV/ Radio programs/ list serve e-mails	Other farmers/family	Ag business professions/ lender/USDA agencies	USDA Agencies/ IFAS events
Internet/TV/Radio programs/list serve e-mails	1.000			
Other farmers/family	-.259	1.000		
Ag business professions/ lender/USDA agencies	.289	-.286	1.000	
USDA Agencies/IFAS events	.250	-.083	.149	1.000

Mean scores, standard deviations, minimums, and maximums scores for variables themes F1-F7 were reported in Table 4-19. With the first three themes of the study relating to the question, 'Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activities and resources?' the mean scores between one-on-one/ attending workshops and websites/technology are similar with the same being true for the standard deviation. It can be seen in Table 4-17 there is positive correlation between one-on-one/ attending workshops and websites/technology, which explains the similarities in mean and standard deviation. Conversely, between the first two themes and traditional print/county meetings, the mean and standard deviation are

very different; the previous correlation in Table 4-17 shows a negative relationship among the themes.

It can be understood the smaller the number for variable theme ‘traditional print/county meetings’ the more reliant the small farm operator is on those particular sources. So if the small farm operator is reliant on variable theme ‘one-on-one/attending workshops’ and websites/technology’ he or she is less likely to use ‘traditional print/county meetings’.

The additional four themes of the study were associated with the question, ‘In the past 2 years, how much did you rely on the following sources to get information about farming or ranching?’ For variable themes ‘Internet/TV/Radio programs/list serves e-mails’, ‘Other family/farmers’, and ‘Ag business professionals/lenders/USDA agencies’, the higher the number the greater the use by the small farm operator. Conversely, the

Table 4-19. Mean scores and standard deviations of F1-F7 variables representing themes

Variable	Mean Score	Standard Deviation	Minimum	Maximum
One-on-one/attending workshops	2.775	1.694	0.000	5.210
Website(s)/technology	2.480	1.600	0.000	4.094
Traditional print/county meetings	-.351	1.631	-5.094	5.392
Internet/TV/Radio programs/list serve e-mails	-.886	2.134	-3.094	9.282
Other farmers/family	3.804	1.701	0.000	7.845
Ag business professions/lender/USDA agencies	.0346	1.811	-2.552	5.518
USDA Agencies/IFAS events	-2.589	2.648	-6.440	2.623

lower the value for variable theme 'USDA agencies/IFAS events, the more small farm operators depend on the source for information.

Objective Three: To Examine the Relationship Between Preferred Educational Material Formats/ Sources and Small Farm Operators' Demographic Characteristics.

The final stage of the data analysis was using correlation analysis and regression models to distinguish the significant demographic variables for predicting use of the thematic sets of information channels. Salkind defines regression as "statistical technique in which one variable is used to predict another," (2004). Similarly, multiple regressions uses multiple variables of a study to predict just one, (Salkind, 2004). Several variables were found to be significant and can be explained by certain demographical variables. A further explanation will be provided below for each variable of the study progressing from theme one through seven (see table 4-13). In order to be considered significant the p-value must be less than .05 at a 95% confidence interval (Agresti & Finlay, 2009).

In order to determine if any of the independent variables were related to one another a correlation matrix was created between nine of the variables used in the regression model (Table 4-20). It is important to note all of the bolded values in the table were found to have significant, using a p-value of .05. The variable 'years farming' was found to have a significant positive correlation with age, mix of enterprises and farm size. Also 'years farming' was significantly associated with number of enterprises but had a negative correlation, which means small farm operators with many years of experience are less likely to have multiple numbers of enterprises. Another pair of variables in which was found to be significant was between age and more than 50% of income comes from farming efforts. A positive correlation between these two variables existed;

as age increases the more likely the small farm operator depends on their farming efforts to generate 50% or more of their household income. Participants' gender and number of enterprises in an operation also had a significant positive correlation. For this case, a female small farmer is somewhat more likely to have multiple enterprises in her operation rather than a male farmer. In the correlation of variables, education and mix on enterprises were found to be significant with a negative correlation. This can be interpreted the higher level of formal education a small farm operator has received, the less likely the small farmer is to have a mix of enterprise, which is defined by having both crops and animals among their operation. An example might be a small farmer who has received a higher level of formal education would have either a traditional crop or some form of animal livestock but not both. Finally, having a larger number of enterprises showed a strong, positive correlation with having a mix of enterprises, as one would expect.

A correlation was computed between the independent variables and the seven communication channel themes (Table 4-21). The variable 'years farming' was found to be significant with the theme of website(s)/technology and agricultural business professions/lender and USDA agencies. Meaning the more years of experience the less likely you are willing to use websites and technology as a source of information. The theme, agricultural business professional, lenders, and USDA agencies, was found to have a positive correlation with years farming. Thus, confirming this is the preferred source in which farmers with many years of experience prefer to use.

The relationship between the theme website(s)/technology and age was found significant but also to have a negative correlation. Since years farming and age are

Table 4- 20. Correlations between independent variables

	Years farming	Age	Gender	Race	50% of income	Education	Mix of enterprises	# of enterprise	Farm size
Years farming	1.000								
Age	.415	1.000							
Gender	-.089	-.015	1.000						
Race	.060	.036	.076	1.000					
50% of income	.026	.130	.023	-.008	1.000				
Education	-.054	.005	-.079	-.024	-.010	1.000			
Mix of enterprise	.234	.039	.014	.037	-.037	-.119	1.000		
Number of enterprise	-.128	-.077	.147	-.034	.029	-.110	.589	1.000	
Farm size	.144	-.068	-.016	-.012	-.015	.060	.048	-.014	-.012

Note: Bold indicates $p < .05$

closely related, this paints the same picture as in the previous correlation, resulting in small farmers who are older do not prefer to use websites and technology as a means of receiving information.

The next variable in which was found to be significant was 'greater than 50% of income' is generated from farming efforts with the theme traditional print/county meetings. It can be concluded these farmers who rely on farming efforts to generate more than 50% of household income do not rely on the use traditional print such as newsletters, trade publications, and magazines to receive information about their industry.

Education was found to be significant with a positive correlation with the theme, one-on-one/attending workshops. It can be concluded the higher level of education the more likely the small farmer is to prefer this one-on-one type of communication while also attending county/state workshop. In addition to this type of preferred format of communication education was also found to be significant with theme six as well. Since the correlation was positive among these variables it can be concluded the higher level of education a small farmer then the more likely they are going to use agricultural business professional, lenders, and USDA agencies as sources of information.

Having a mix of enterprises was found to be significant with the theme Internet, TV, radio programs, and lists serve e-mails. With a positive correlation it can be concluded small farmers who have a mix of enterprises prefer to use these types of information technologies to obtain educational material.

Additionally, the number of enterprises was found to be significant with the themes website(s)/technology and traditional prints/county meetings. Much like having a mix of

enterprises, small famers with multiple enterprises prefer to use information technologies as a format to receive educational material. With theme three being the use of traditional prints, trade publications, and magazines, it can be concluded small farm operators with multiple enterprises do not prefer to use these types of traditional print.

The final variable in which was found to be significant between the studies themes was farm size, in acres. Themes, one-on-one interaction, traditional print/ county

Table 4-21. Correlations between study variables and variable themes

	One-on-one/ Workshop	Website/ Technology	Tradition prints/ county meeting	Internet/TV/ Radio programs/ list serve e-mails	Other farmers/ family	Ag professional/ lenders/ USDA agencies	USDA Agency/ IFAS events
Years farming	.085	-.137	-.006	.066	.117	.247	-.073
Age	-.052	-.156	.079	.101	-.008	.073	.055
Gender	-.076	.092	-.061	-.046	.021	-.112	-.032
Race	-.025	-.057	-.005	-.027	.051	.038	-.051
Greater than 50% of Income	-.127	-.103	.157	.042	-.066	-.090	.104
Educational	.130	.040	-.054	.012	-.017	.122	-.062
Mix of enterprise	.063	.003	-.092	.143	.067	.076	-.087
# of enterprise	.012	.175	-.164	.094	.032	-.045	-.072
# of acres	.128	.007	-.118	.035	.159	.153	-.029

Note: Bold indicates p<.05

meetings, other farmers/ family, and agricultural business professional/ lenders/ USDA agencies were all found to be significant with the size of the farm. It can be concluded

the larger the operation the more likely the small farm operator prefers to use one-on-one interaction, also with also attending workshops as being an effective means of communication. This is consistent with theme five, which is using family, friends, agricultural business professional, lenders, and USDA agencies as a source of information. Also, the negative relationship between farm size and theme three, which is traditional prints, trade publications, and magazines shows a contrasting preference with the use of one-on-one interactions and workshops among small farm operators with multiple acre operations.

Multiple Regressions

Multiple regressions were computed on the thematic constructs for the items to question 'have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activates and resources,' of the instrument in conjunction with nine demographic variables in the study. The values are bolded in Table 4-22, when the parameter estimate was found to be significant. Using one-on-one/attending workshops as the dependent variable in this multiple regression analysis, the variables 50% of the income is a result of farming efforts and education level were considered significant, with farmers who have less income from the farm or more education being more likely to use one-on-one consultation or attending workshops. The regression model for this theme had a adjusted R^2 of .034. Using the website(s)/technology theme as the dependent variable, the number of enterprises had a significance level of .044, whereby those with more enterprises tended to prefer websties and the adjusted R^2 of the model was .041.

Table 4-22. Regression of information themes from question 'Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activates and resources' (n=304)

Independent Variables	One-on-one/attending workshops		Website(s)/ technology		Traditional prints/ county meetings	
	B	Sig.	B	Sig.	B	Sig.
Intercept	2.224		2.043		-2.958	
Over 50% of house-hold income is from farm	-.431	.049	-.303	.139	.504	.014
Education	.140	.052	-.013	.847	-.038	.568
Respondent's race	-.296	.607	-.512	.341	.044	.934
Respondent's sex	-.133	.572	.297	.178	-.240	.276
Respondent's age	-.012	.272	-.011	.250	.004	.667
Years farming	.014	.147	-.012	.190	-.004	.657
Number of enterprises	.008	.884	.105	.044	-.139	.008
Number of acres	.000	.139	.003	.775	.000	.086
Has a mix of enterprises	.231	.298	.218	.294	-.365	.080
Adjusted R ²	.034		.041		.058	
Model F-Value	1.950		2.180		2.687	
Sig.	.046		.024		.005	

With the same principle from the previous multiple regression as above but rather using the question 'In the past 2 years, how much did you rely on the following sources to get information about farming or ranching' there were variables in which can be predicted using the fourth through seventh theme. The values are bolded in Table 4-23, when it is concluded to be significant. The first being years of experience farming or ranching in the model for using internet/TV/radio programs/list-servs, which had a parameter estimate of .03 and was significant at .007.

Table 4-23. Regression of information themes for question 'In the past 2 years how much did you rely on the following sources to get information about farming or ranching' (n=304)

Independent Variables	Internet/TV/Radio programs/list serve e-mails		Other farmers/family		Ag professional/lenders/ USDA agencies		USDA Agencies/ IFAS events	
	B	Sig.	B	Sig.	B	Sig.	B	Sig.
Intercept	-3.003		3.186		-1.181		-2.339	
Greater than 50% of Income	.012	.963	-.227	.291	-.326	.158	.385	.271
Education	.029	.737	.027	.700	.177	.020	-.122	.288
Respondent's race	-.511	.458	.451	.425	.306	.614	-.681	.459
Respondent's sex	-.032	.908	.008	.973	-.326	.190	-.073	.845
Respondent's age	.021	.096	.000	.990	.006	.586	.014	.400
Years farm or ranching	.030	.007	.014	.133	.025	.012	-.017	.263
Number of enterprises	.093	.159	.077	.159	.013	.829	-.113	.204
Acres in the operation	3.723	.795	.0004	.023	.0009	.051	-1.143	.952
Has a mix of enterprises	.498	.062	.103	.636	.551	.020	-.490	.168
Adjusted R ²	.068		.020		.102		.000	
Model F-Value	3.002		1.554		4.088		.999	
Sig.	.002		.130		.000		.441	

The adjusted R² for the model was .068. When using the theme of other farmers/family as the dependent variable it was concluded the independent variable of number of acres in production was proven to be statically significant at the .023 levels. The models adjusted R² was .020. The size of the operation and scale to which the small farm is operating plays a role in which educational source and format they prefer to receive

information when using the theme of agricultural business professional/lenders/USDA agencies, the regression had three other independent variables in which are statistically significant. The first being educational attainment ($b=.177$), as well as number of years farming or experience ($b=.025$), and finally having a mix of enterprises ($b=.551$). This model has an adjusted R^2 of .102. Finally, no predictions were significant in distinguishing preferences for the theme USDA Agencies/IFAS events. Overall, the demographic variables accounted for only a small amount of variation in each of the seven dependent variables used in the regression analysis.

Summary

This chapter presented the results gathered from the 2008 Small Farms Survey. The research reported frequency and other descriptive statistics in which provide demographic information on the population under research. Also, a wide range of ages was represented in this study, varying from 21-81 years of age.

Additionally, the analysis used a factor analysis to extract variables within the study to group multiple items into sets that had similar themes of information sources and formats. A correlation analysis was conducted to determine if certain demographics such as age, education level, and farm size played a role in the pattern of preferred sources and formats which small farm operators sought educational information.

Finally, a multiple regression approach was used to test nine variables in the study against mean scores of the constructed variables. Statistical significances were found when analyzing the nine variables together to which source/format small farm operators prefer to receive educational material.

CHAPTER 5 CONCLUSIONS AND RECCOMANDATIONS

Purpose and Objectives

The purpose of this study was to determine the preferred information sources and formats of small farm operators in Florida for receiving educational information.

Additionally, the study examined the relationship between preferred educational material formats/ source and small farm operators' demographic characteristics. In order to meet the purposes of this study, the following objectives were investigated:

1. Identify demographics of small farm operators in Florida.
2. To determine the preferred format and source of educational materials by Florida small farm operators for receiving information.
3. To examine the relationship between preferred educational material formats/ sources and small farm operators' demographic characteristics.

Methodology

Quantitative research typically aims to classify features, count them, along with constructing statistical models in an attempt to explain what is observed (Ary, Jacobs, Razavieh, and Sorenson, 2006). More specifically, the researcher chose to use a descriptive survey design approach to ascertain the preferred information channels of Florida small farm operators. The sample was drawn from addresses gathered from both the Cooperative Extension Service (CES) Small Farms mailing list and workshop attendee list around the state of Florida, which served as the frame for the study. The research team mailed a total of 859 questionnaires to small farm operators around Florida according to Dillman's Tailored Design Method (2009). A total of 304 usable responses were obtained and the research team found the sample data to be

comparable with the 2007 Census of Agriculture demographical information (Gaul et. al, 2009).

Statistical Package for the Social Sciences (SPSS®) 17.0 for Windows was used to analyze the questionnaire data. Descriptive statistics were calculated along with frequencies, and factor analyses were computed. Finally, a regression and multiple regression analyzes was conducted to determine relationships among the study's variables.

Summary of Findings

Objective 1: Identify Demographics of Small Farm Operators in Florida.

Demographic findings were reported on age, years of farming experience, education, gender, race, and yearly gross income. The mean age of the small farm operator was 58 years old. Of the respondents nearly 75% reported having ten plus years of experience operating a farm or ranch.

The participants were well educated, with nearly 70% having at least college education and nearly one-fourth had a graduate or professional degree. Of the 304 respondents who reported their gender, 66.2% were male and the remaining 33.8% were female small farm operators. Nearly all respondents 93.5% classified themselves as white. A few were African American, American Indian, Alaskan Native, Asian, or other.

Most small farms did not generate a lot of income, with 49% of small farm operators reporting \$0-10,000 in total sales in 2007.

Objective 2: To Determine the Preferred Format and Source of Educational Materials by Florida Small Farm Operators.

Factor analyses were used to create variables which represent trends among information sources/formats for 'Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activates and resources' and 'In the past 2 years, how much have you rely on the following sources to get information about farming or ranching.' Seven variables were created to represent information channel themes. The first theme that was found was the one-on-one interaction and attending workshops held by educators. The second theme in which was found was the use of information technologies. The third theme in which was found was that of traditional print and magazine/newspaper publications. The fourth theme in which existed was the use of Internet, TV, radio programs, and list serv e-mails. The fifth theme in which was found was the use of other farmers and family in the farming community. The sixth theme in which was found was the use of agriculture business professions, lender, and USDA agencies. The final theme that was found was the use of USDA agencies and IFAS events.

Objective 3: To Examine the Relationship between Preferred Educational Material Formats/Sources and Small Farm Operators' Demographic Characteristics.

1. A series of regression analyses were conducted to identify the significant demographic predictors of information sources and formats. It was concluded, education level, number of enterprises, mix of enterprises, and size of operation were found to be significant in explaining variation in information use. A negative correlation between the number of enterprises per operation and the variable with the theme of using traditional prints/publications was found to be significant. A positive correlation was between the number of years farming or ranching and

the variable with the theme of using information technologies/ Ag professionals and USDA agencies. A correlation between the number of acres in operation and the variable theme of using other farmers/family also had a positive correlation. A conclusion from the multiple regression was small farm operators who had larger acreage operations were more likely to use family, peers, and farm organizations as a source of information.

Conclusions

Based on the demographic comparison of the 2008 Small Farms Survey and the 2007 Census of Agriculture, the findings and conclusions can be generalized to the 859 small farm operators studied. The following conclusions were drawn from the study:

2. Small farmer operators who earned 50% or more of their gross annual income from farming efforts were less likely to be engaged in the Cooperative Extension Service (CES) statewide small farms programs; instead these farmers use other farmers/family as a resource for information.
3. Small farm operators' with more education were more likely to engage in the CES statewide small farms programs and farmer-to-farmer networking.
4. Small farmers' with more diverse operations (i.e., more enterprises within one operation) were more likely to use the CES websites to gain information.
5. Small farm operators who had more years of experience were less likely to use information technologies as a source of information. In addition, small farm operators with a mix of enterprises (i.e., both row crops and livestock) were more likely to use these information technologies as sources of information.
6. Small farm operators who had larger acreage operations were more likely to use family, peers, and farm organizations as a source of information.
7. The traditional small farm operator is most likely to use family, peers, and farm organizations as a source of information.

Discussion and Implications

Farmers' who earned 50% or more of their gross annual income from farming efforts were less likely to engaged in the Cooperative Extension Service (CES) statewide small farm programs and farmer to farmer networking. A negative parameter estimate in the regression model was found between more than 50% of income comes from farm and one-on-one meetings and workshops. Income level of the farm was shown to be significant when predicted which format the small farmers preferred to receive educational information. It can be concluded the farmers who matches this criteria rely heavily on farm income and are not classified as those who farm as a hobby or for a secondary income. These types of farmers are more reliant on individual farmer networks within their community and agri-business professionals. As for as practitioners of the research, it would be most effective to target these agri-business professionals so they would be able to supply this type of farmer with information or serve as a median of information between CES and the farmer. This specific finding supports previous studies findings, such as King and Rollins conducted in 1993, farm size and acres in production have an affect on which information channels is preferred by the farmer. In this particular case the, at least some socio-economic characteristics previously mention in the conceptual model play a role in the adoption of new information channels.

Small farm operators' with more education were more likely to engage in the CES statewide small farms programs and farmer-to-farmer networking. A positive correlation existed between educational level and the utilization of the CES. This correlation can be interpreted that the small farm operators in which tap into the CES programs tend to have a higher educational level than the farmers who do not use the CES as a

resource. These types of small farm operators recognize the resources the CES offers and chose to take advantage of the professional advice funded by the state of Florida. As Cartmell, Orr, and Kelemen (2006) suggested, it is not the individual educational level of the small farmer but rather the perceived self-confidence around experts or researchers. Intimidation among Extension agents and researcher professional can be seen as a barrier to communication to small farm operators. Operators' who have a higher level of comprehension and read at a level higher than that of a high school graduate, are thought to be more comfortable to interact with industry professional and experts within their specific industry (Cartmell, Orr, & Kelemen, 2006). The higher level of education can boost perceived self-confidence and is congruent with the style of learning at a formal collegiate setting. Additionally, the CES can engage small farmers with a lower education level by designing programs taught at a lower comprehension level or that are overall more basic. Characteristics of the decision-making unit such as personality variables and communication behavior are affected by educational level and perceived self confidence, thus affecting the knowledge and persuasion stage in the study's conceptual model (Rogers, 2005).

Small farmers' with more diverse operations (i.e., more enterprises within one operation) were more likely to use the CES websites to gain information. It can be concluded the small farm operators with a diverse operation prefers the method of receive information via the CES websites and other information technologies due to quick delivery. Diversity among enterprises suggests the need for fast relevant information to stay competitive in multiple enterprises. Within the conceptual model a prior condition must exist for the farmer to feel there is a relative advantage to use

technology, such as sources associated with the Internet. A certain level of innovativeness is associated with the ability to use new technologies without being intimidated (Fastrak Consulting, 1998). It is important to recognize when a small farmer begins the innovation-decision process and when he or she ends multiple information channels can be used (Rogers, 2005; Israel, 1991). If the farmer begins using the Internet as source of information does not mean that is the only source the farmer will use at the end of the process.

Having more years of experience actually decreases the use of information technologies and a mix of enterprises (i.e. both row crops and livestock) increases the use of information technologies among information channels. In this particular case a mix of enterprises is defined by having both crops and some type of livestock. The relationship with a mix of enterprises and multiple enterprises mentioned previously suggest the need for fast relevant information. Results showed that the older you are the less likely you would use the previously mentioned information technology as an effective communication channel. Again, there must be a perceived relative advantage to adopt these types of information technology sources within the innovation-decision process. Conditions such as past experience perceived advantage and social economic characteristics all have an effect of the decision process.

Larger acreage operations were more likely to use family, peers, and farm organizations as a source of information. A positive regression parameter suggests that the size of the operation does have an effect on the preferred information channels of small farm operators. Because some small farmers get information via farm organizations, this can be an effective means of reaching these farmers in charge of

larger operations or more likely to be 'full time' farmers. Here the characteristic of the decision-making unit has the most effect on where information is obtained. In this study, the socio-economic characteristics of a large farm operator or one who depends on the farm for more than 50% of the household income lead to different preferences for information formats/sources than a farmer who is operating a small scale operation has. This concept has remained relatively unchanged from previous studies such as Nudell, Roth, and Saxowky in 2005, regardless of the specific industry.

In general, the use of family, peers and farm organizations are most likely to reflect the traditional Florida small farmer. Much like the farmers who operate large scale operation the information channels of family, peers, and farm organizations typically reflect the traditional small farmer in Florida. It can be concluded this type of one-on-one interaction among other farmers and family is the most effect means of traditional small farm operators in Florida to receive information regarding specific commodities and industry related news.

Recommendations

Based on the results and conclusions from this study, the researcher has made recommendations for practitioners and researchers.

Practitioners Recommendations

Based on this study, the researcher suggests that practitioners consider the following recommendation:

1. Agricultural educators should target small farm operators who have a mix of enterprises in their operation with varying information technologies such as website use, list-servs, and interactive videos.
2. Agricultural educator should not use information technologies to target older farmers but rather one-on-one interaction as a means of communication.

3. Agricultural educators should target larger acreage operators with one-on-one interactions (i.e. telephone calls or farm visits) to disseminate educational information to small farm operators.
4. Agricultural educators using traditional prints, newsletters, and trade publications should be expected to reach small farmers who have diversity among enterprises on their small farm (i.e., several different enterprises among their operation). Additionally, small farm operators who have a mix of enterprises among their operation use these types of traditional print, newsletters, and trade publications as an effective means of communication.
5. Agricultural educators should design educational programs to specific audience education level to ensure learning and retention of material, in such a way there would be levels of knowledge like beginner, intermediate, and an advanced level. Obviously the advanced level programs would have higher technical data and move at an accelerated rate.
6. Agricultural educators should target small farmers with multiple enterprises or small farm operators who are less experienced with information technologies, in order to minimize cost and maximize coverage/dissemination of material to these groups.
7. Agriculturalists should create an enterprise specific network in which farmers in the state producing the same products can get together and exchange information regarding farming practices. Also, having the ability to determine what enterprises are profitable and sustainable in the future would be another perceived advantage of this industry specific network. This can be done using current technology such as social networking sites, blogging, Internet, and traditional mail.
8. Agricultural educators should promote the use of information technologies such as interactive classes and interactive video conferencing to groups who are willing to adopt the use of technologies. With the use of technology these groups can receive education material at their leisure and comprehension level with the assumption the small farm operator has a means to connect to the Internet.

Future Research Recommendations

This study has identified the need for research in the following areas:

1. To better understand Florida small farm operators a study should be conducted to determine the motivational factors to farm, whether it is economic, recreational, or other reasons. Understanding the reason why small farm operators choose to farm might be important to determine how active they are seeking new information. Different motivational factors might lead to different preferred information channels.

2. To better understand the willingness of small farm operators to accept and use information technology sources. It was shown that certain demographic characteristics are more accepting of information technologies such as Internet use and online tutorials. Since these resources are currently present, and available to everyone with an Internet connection, it is a underutilized resource among many of the small farm sector.

APPENDIX A
PROCEED TO SMALL FARMS SURVEY



Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

July 14, 2008

Dear Florida Farmer or Rancher,

A few days from now you will receive in the mail a request to fill out a questionnaire for people who have attended one of its programs on the topics of alternative enterprises and small farms during the last two years.

In order to meet the changing needs of small farmers, we would like to find out about your farm or ranch operation and how we can assist you better. Your responses will enable us to help organize the industry better and to address barriers from regulations, markets, and obtaining credit.

We are writing because we have found many people like to know ahead of time that they will be contacted. The study is an important one that will help the Cooperative Extension Service understand our clients' needs.

Thank you for your time and consideration. It's only with the generous help of people like you that our survey can be successful.

Sincerely,

A handwritten signature in blue ink that reads 'Glenn Israel'.

Glenn Israel
Survey Director

A handwritten signature in blue ink that reads 'Robert C. Hochmuth'.

Robert C. Hochmuth
Small Farms Program Coordinator

The Foundation for The Gator Nation



Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

August 15, 2008

Dear Florida Farmer or Rancher,

The Florida Cooperative Extension Service is conducting a survey of people who have attended one of its programs on the topics of alternative enterprises and small farms during the last two years. In order to meet the changing needs of small farmers, we would like to find out about your farm or ranch operation and how we can assist you better. Your responses will enable us to help organize the industry better and to address barriers from regulations, markets, and obtaining credit. The survey will take about 25 minutes to complete.

You are one of a small number of farmers and ranchers chosen to participate in this study. Since your responses will also represent nearly 40,000 other farmers in Florida who were not selected, we hope that you will complete the survey as soon as possible. Your answers will be kept confidential to the extent provided by law. There are no names or ID numbers associated with your survey. We will use your answers only in summaries with the answers of other respondents.

Your participation is voluntary. You do not have to answer any question that you do not wish to answer. We believe that there are no risks to you from participating in this study. There are also no direct benefits or compensation to you for participating. If you have questions about your rights, contact the UFIRB office, Box 112250, University of Florida, Gainesville, FL 32611-2250.

If you have questions about the survey, please call 352-392-0502, ext. 246, or send an email to gdisrael@ufl.edu. We have enclosed a stamped envelope for you to mail your completed survey to us. Thank you for your help.

Sincerely,

A handwritten signature in blue ink that reads "Glenn Israel". The signature is written in a cursive style.

Glenn Israel
Survey Director

A handwritten signature in blue ink that reads "Robert C. Hochmuth". The signature is written in a cursive style.

Robert C. Hochmuth
Small Farms Program Coordinator



Department of Agricultural Education and Communication

305 Rolfs Hall
PO Box 110540
Gainesville, FL 32611-0540
Telephone: (352) 392-0502
Fax: (352) 392-9585

August 15, 2008

Dear Florida Farmer or Rancher,

A couple of weeks ago, we sent you a survey asking about your farm or ranch. If you have already returned the 2008 Small Farms Survey, please accept our sincere thanks. Many farmers and ranchers have already sent back their questionnaire. But because the survey is anonymous and we want to give people who have not responded yet another opportunity to complete the survey, we are sending a second survey to the entire mailing list.

We are writing again because of the importance that your questionnaire has for helping to get accurate results. Although we sent questionnaires to farmers and ranchers across Florida, we need to hear from nearly everyone in the sample to be sure that the results are truly representative.

In order for the Florida Cooperative Extension Service to meet the changing needs of small farmers, we need to find out about your farm or ranch operation and how we can assist you better. Your responses will enable us to help organize the industry better and to address barriers from regulations, markets, and obtaining credit. The survey will take about 25 minutes to complete.

Your participation is voluntary. You do not have to answer any question that you do not wish to answer. We believe that there are no risks to you from participating in this study. There are also no direct benefits or compensation to you for participating. If you have questions about your rights, contact the UFIRB office, Box 112250, University of Florida, Gainesville, FL 32611-2250.

Your answers will be kept confidential to the extent provided by law. There are no names or ID numbers associated with your survey. We will use your answers only in summaries with the answers of other respondents.

If you have questions about the survey, please call 352-392-0502, ext. 246, or send an email to gdisrael@ufl.edu. We have enclosed a stamped envelope for you to mail your completed survey to us. Thank you for your help.

Sincerely,

A handwritten signature in blue ink that reads "Glenn Israel".

Glenn Israel
Survey Director

A handwritten signature in blue ink that reads "Robert C. Hochmuth".

Robert C. Hochmuth
Small Farms Program Coordinator

The Foundation for The Gator Nation
An Equal Opportunity Employer

Small farms Survey Post Card Message

Dear Florida Farmer or Rancher,

A few days ago, I sent you the 2008 Small Farms Survey. It asks about your farm or ranch operation, as well as how Extension can be more helpful to you. If you have completed and returned the questionnaire, please accept my sincere thanks.

If you have not returned your questionnaire yet, please do so as soon as possible. Because of the small number of people being asked to participate in this survey, it important that each person complete the questionnaire. Thank you for your help.

Sincerely,

Glenn Israel
Survey Director

APPENDIX B
2008 SMALL FARMS SURVERY

2008 Small Farms Survey



Program Development & Evaluation Center
University of Florida
PO Box 110540
Gainesville, FL 32611-0540
352-392-0502
gdisrael@ufl.edu



We hope that you will enjoy completing this survey about your farm or ranch and we appreciate your help. First, we would like to know about your involvement in the farm or ranch. Please mark your answers with an [X] or write in the answer space.

1. Do you own a farm or ranch? No

Yes

↳ If YES to question 1, how many years have you owned a farm or ranch? years

2. Do you operate or manage a farm or ranch? No → If No, stop here and return the questionnaire

Yes

↳ If YES to question 2, how many years have you operated a farm or ranch? years

Please tell us about the land used in your operation.

3. What is the total number of acres in your operation? acres

4. What is the total number of acres actively used for production? acres

5. What percent of land in production is owned? %

6. What percent of land in production is rented? %

7. Currently, how important are the following reasons for farming or ranching? (Mark an answer for each item)

	Not Important ▼	Slightly Important ▼	Somewhat Important ▼	Moderately Important ▼	Very Important ▼
Primary income source	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enjoy farming and ranching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tradition in my family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplemental income	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Want to own my own business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. What will most likely happen to your farm or ranch when you stop farming or ranching? (Mark only one)

- It will be inherited or sold and remain in production
- It will be inherited or sold and NOT remain in production
- It will be donated to an organization or agency (conservation, community trust, etc.)
- I don't know

9. Using the list below, tell us how many years you have been offering the product or service, and the percent of total annual gross sales for your operation.

	Number of Years		Percent of Total Annual Gross Sales		
Horticultural Crops					
Culinary or Medicinal Herbs					%
Cut Flowers					%
Flowers and Bedding Plants					%
Fruits, Citrus					%
Fruits, Deciduous					%
Fruits, Other Tropical					%
Fruits, Small					%
Vegetables, Field					%
Vegetables, Greenhouse					%
Woody Landscape Plants					%
Other (describe) _____					%
Forage and Field Crops					
Grain Crops					%
Hay					%
Pasture					%
Peanuts					%
Silage					%
Tobacco					%
Other (describe) _____					%
Livestock					
Cattle					%
Dairy Products					%
Goats					%
Horses					%
Poultry					%
Rabbits					%
Sheep					%
Swine					%
Other (describe) _____					%
Services Provided to Other Farmers					
Farrier (blacksmith)					%
Custom Tractor (mow, disk, bale)					%
Seeding and Spreading Services					%
Land Clearing					%

9. Continued.

Other (describe) _____	Number of Years		Percent of Total Annual Gross Sales		
					%
Other Enterprises					
Agri/Eco/Heritage Tourism					%
Aquaculture					%
Beekeeping					%
Christmas Trees					%
Hunting Leases					%
Timber and Associated Products (Pine Straw)					%
Value-Added Products (Cheese, Jams, Salsa)					%
Other (describe) _____					%

The following questions focus on the production aspects of your farm or ranch.

10. Please indicate whether you use the following technologies and management practices on the farm or ranch? (Mark an answer for each item)

	Use at least sometimes ▼	Do not Use ▼	Not applicable ▼
General Farm			
Computer software for financial/farm planning, record keeping, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet access for farm- or ranch-related communication, information gathering, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Irrigation technologies (automated irrigation or valves, soil moisture monitoring, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil testing for nutrient content, pH, organic matter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alternative energy use (biodiesel, solar power)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Animal manures and compost (nutrient contribution, organic matter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
On-farm composting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Best Management Practices (BMP) implementation strategies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Food safety (post-harvest handling, cooling, packaging)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crops			
Greenhouses, row covers or other crop protection technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plastic mulch and drip irrigation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tissue analysis (sap testing, whole leaf analysis, SPAD meter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integrated pest management (IPM), scouting, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Continued.

	Use ▼	Do not Use ▼	Not applicable ▼
Cover crops (nitrogen contribution, soil cover, increase organic matter)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved cultivar selection (harvest date, pest resistance, consumer preference)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Livestock			
AI (Artificial Insemination)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ET (Embryo transfer)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Herd health management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bio-security	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closed vs. Open herd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Controlled breeding program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restraint handling facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FAMACHA/Parasite control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Body condition scoring (BCS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pastures			
Rotational grazing plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Soil testing for nutrient content, pH, organic matter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drag pastures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use appropriate stocking rates/AUMs (animal unit month)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Establish a sacrifice area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Walk pastures and fence lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. What type of irrigation system is MOST important for your crops or pastures? (Check one)

- Drip or low volume
- Seepage
- Overhead (sprinklers, pivot, or towable systems)
- Other (describe) _____
- I do not use irrigation → Skip to question 12

→ If you use irrigation, what is the source of water?

- Surface water
- Well
- Both

12. How many years have you practiced any of the following production strategies?

- Certified organic production years
- Follow organic regulations but not certified years
- Follow organic principles, but with some conventional inputs years
- Conventional production years
- Other production (describe) _____ years

13. Are you a member of any agricultural associations or organizations? (Florida Blueberry Association, Cattlemen's Association, Farm Bureau, etc.)

- Yes → If YES, which one(s)? _____
- No

The following question focuses on problems that you may have with accessing resources.

14. Did you have a problem in getting any of the following resources that you needed in the past 2 years? Mark an answer for each item.

	Not a problem	Slight problem	Moderate problem	Serious problem	Extreme problem	Doesn't Apply
Land to rent	<input type="checkbox"/>					
Land to purchase	<input type="checkbox"/>					
Labor throughout the season or off-season	<input type="checkbox"/>					
Machinery and equipment	<input type="checkbox"/>					
Fixed assets (fencing, buildings, etc.)	<input type="checkbox"/>					
Operating supplies (feed, fertilizer, or pesticides, etc)	<input type="checkbox"/>					
Fuel	<input type="checkbox"/>					
Water	<input type="checkbox"/>					
Custom services (hay baling, liming, crop consulting, etc.)	<input type="checkbox"/>					
Veterinarian services	<input type="checkbox"/>					

The following set of questions focuses on marketing aspects of your farm or ranch.

15. How much do you agree or disagree with each of the following statements?

	Strongly disagree	Somewhat disagree	Neither	Somewhat agree	Strongly agree
I think it is important to have a marketing plan for my farm or ranch.	<input type="checkbox"/>				
I don't have the time to do a good job on marketing.	<input type="checkbox"/>				

15. Continued.

	Strongly disagree	Somewhat disagree	Neither	Somewhat agree	Strongly agree
It is easy to find buyers for my product.	<input type="checkbox"/>				
I have a hard time meeting the conditions that buyers set.	<input type="checkbox"/>				
I raise the crops or livestock that bring a premium price on the market.	<input type="checkbox"/>				
I do not know where I will sell my products before I produce them.	<input type="checkbox"/>				
I have ways of increasing the value of what I raise.	<input type="checkbox"/>				
I am able to time the sale of my products to get "top of the market" prices.	<input type="checkbox"/>				

16. In the past 2 years, how often do you use each of the following ways to sell products?

	Never	Rarely	Occasionally	Often	Always
Direct to consumer (including on-farm sales, restaurants, farmers markets & institutions)	<input type="checkbox"/>				
Through a middleman (like a broker or livestock auction)	<input type="checkbox"/>				
Through marketing contracts	<input type="checkbox"/>				
As part of a marketing alliance (like Whole Foods or Publix)	<input type="checkbox"/>				
As part of a marketing cooperative (like Florida's Natural)	<input type="checkbox"/>				
As part of an integrated system (like Tyson or Perdue)	<input type="checkbox"/>				

The following set of questions focuses on financial aspects related to your farm or ranch.

17. In the past 2 years, how much do you rely on the following sources of credit?

	Not at all	Slightly rely	Somewhat rely	Mostly rely	Completely rely
Commercial bank (like Bank of America)	<input type="checkbox"/>				
Farm Credit	<input type="checkbox"/>				
Local Bank	<input type="checkbox"/>				
Credit Union	<input type="checkbox"/>				
Cooperative	<input type="checkbox"/>				
Farm Service Agency (of USDA)	<input type="checkbox"/>				
Family member, friend or associate	<input type="checkbox"/>				

18. How much do you agree or disagree with each of the following statements?

	Strongly disagree	Somewhat disagree	Neither	Somewhat agree	Strongly agree
I think it is important to have a formal business plan for my farm or ranch.	<input type="checkbox"/>				
I know where to get useful information about financing my farm or ranch.	<input type="checkbox"/>				
I don't have enough time to keep good records for my farm or ranch.	<input type="checkbox"/>				
I have good professional help with managing finances of my farm or ranch.	<input type="checkbox"/>				
I can't get good financial advice.	<input type="checkbox"/>				
I know enough about how to keep good records for my farm or ranch.	<input type="checkbox"/>				
I have trouble opening a business account at the bank for my farm or ranch.	<input type="checkbox"/>				
I have enough collateral to get a farm or ranch loan through most lenders.	<input type="checkbox"/>				
It is hard to get enough credit to run my farm or ranch.	<input type="checkbox"/>				
I can support my farm or ranch with off-farm supplemental income.	<input type="checkbox"/>				
I don't have enough insurance to cover my farm or ranch.	<input type="checkbox"/>				

The following questions focus on sources of information and programs you may use.

19. Which University Extension Service do you typically use?

- University of Florida Institute of Food and Agricultural Sciences (UF-IFAS)
- Florida Agricultural and Mechanical University College of Engineering Sciences, Technology and Agriculture (FAMU - CESTA)
- Both
- Neither

20. Have you ever participated in or used any of the following UF-IFAS/FAMU Extension programs, activities and resources?

	Not Used	Used but Not Helpful	Used and Helpful
County meetings, workshops, conferences, or field days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Regional and state-wide meetings, workshops, conferences, or field days	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multi-state or national conferences and workshops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
One-on-one extension visits at your farm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Continued.

	Not Used	Used but Not Helpful	Used and Helpful
Educational farm tours or other farmer-to-farmer networking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local County Extension newsletters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extension information in third-party newsletters or magazines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local County Extension websites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Florida Small Farms and Alternative Enterprises website (UF-IFAS/FAMU-CESTA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FAMU-CESTA Cooperative Extension website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UF-IFAS Solutions for Your Life website	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. In the past 2 years, how much did you rely on the following sources to get information about farming or ranching?

	Not aware of	Rely not at all	Slightly rely	Somewhat rely	Mostly rely
Agribusiness representatives	<input type="checkbox"/>				
Lenders	<input type="checkbox"/>				
Certified crop advisors or consultants	<input type="checkbox"/>				
Commercial publications about farming or ranching (magazines, newsletters, books, etc.)	<input type="checkbox"/>				
USDA government agencies (like FSA, NRCS, RMA, ATTRA and SARE)	<input type="checkbox"/>				
Farm Organizations (like Farm Bureau, farm groups, cooperatives, & non-profit organizations)	<input type="checkbox"/>				
Other farmers or ranchers	<input type="checkbox"/>				
Family member	<input type="checkbox"/>				
TV or Radio programs featuring UF-IFAS/FAMU-CESTA hosts	<input type="checkbox"/>				
UF-IFAS/FAMU-CESTA Internet websites and printed publications (fact sheets)	<input type="checkbox"/>				
UF-IFAS/FAMU-CESTA Events (like field days, workshops, conferences & tradeshow)	<input type="checkbox"/>				
Direct contact with UF-IFAS/FAMU-CESTA Extension Agent (farm visits, email, phone calls)	<input type="checkbox"/>				
UF-IFAS/FAMU-CESTA Internet list-servs	<input type="checkbox"/>				
UF-IFAS/FAMU-CESTA Internet classes (distance education)	<input type="checkbox"/>				
UF-IFAS/FAMU-CESTA Interactive video conferencing	<input type="checkbox"/>				

22. When are you likely to attend UF-IFAS/FAMU educational programs? (Check all that apply)

	Morning ▼	Afternoon ▼	Evening ▼	Full Day ▼	Half Day ▼	Multiple Days ▼
Monday	<input type="checkbox"/>					
Tuesday	<input type="checkbox"/>					
Wednesday	<input type="checkbox"/>					
Thursday	<input type="checkbox"/>					
Friday	<input type="checkbox"/>					
Saturday	<input type="checkbox"/>					
Sunday	<input type="checkbox"/>					

23. How far are you willing to travel to attend a UF-IFAS/FAMU sponsored educational program?

- Less than 25 miles
- 25-49 miles
- 50-74 miles
- 75-100 miles
- 100 or more miles

24. Have you ever participated in or used the following USDA programs, activities and resources? (Mark one answer for each program or resource)

	Participated In or used	Did not use or participate	Not aware of	Not Applicable
Natural Resource Conservation Service Programs (CRP, EQUIP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Small, Limited Resource and Beginning Farmers/Ranchers Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crop Insurance Program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USDA Rural and Community Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USDA Forest Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
National Small Farms Conference	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sustainable Agriculture Research and Education (SARE) educational programs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SARE grant for producers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAN (Sustainable Ag Network) Bulletins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Farm Service Agency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FEMA Disaster Assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following questions focus on government regulations and policies.

25. How much do you agree or disagree with the each of the following statements?

	Strongly disagree ▼	Somewhat disagree ▼	Neither ▼	Somewhat agree ▼	Strongly agree ▼
There are too many government regulations to make an income in farming.	<input type="checkbox"/>				
Regulations are not currently restricting small farms.	<input type="checkbox"/>				
I don't know which government regulations are important for me to know about.	<input type="checkbox"/>				
I can get good advice about how to comply with government regulations.	<input type="checkbox"/>				
My county's policy on special agricultural assessment for property tax is fair.	<input type="checkbox"/>				
Government does not understand the special needs of small farmers.	<input type="checkbox"/>				
There needs to be a better political voice for representing small farmers.	<input type="checkbox"/>				

26. Have you heard of the Florida Department of Agriculture's Best Management Practices (BMP) Program?

- Yes
- No

27. Have you signed and submitted a Notice of Intent (NOI) to comply with Florida Department of Agriculture and Consumer Service's BMP program?

- Yes
- No

28. Given your answers so far, we would like you to compare five factors on their impact on meeting your goals as a farmer or rancher? *Mark 1 for the most important factor and 5 for the least important factor. Please use each number only once.*

- ___ Materials and supplies (fertilizer, labor, land and machinery)
- ___ Marketing, finding ways to sell what I produce at a profit
- ___ Finances and financial management, including credit and sound financial advice
- ___ Educational programs and sources of reliable information available to me
- ___ Obligations to comply with rules and regulations from state and federal programs

The following set of questions focuses on general information about yourself.

29. How many years experience do you have in farming? years

30. What do you consider your primary occupation?

- Retired
- Farming
- Other, please specify your job title *and* industry where you work _____

31. What is your spouse's or partner's primary occupation, if applicable?

- Retired
- Farming
- Other, please specify your title *and* industry _____

32. How long has your family been in farming?

- I am the first generation
- My parents are the first generation
- My grandparents are the first generation
- My family has farmed for more than three generations

33. Are any of your family members' farmers or ranchers?

- Yes
- No

34. What is your age? years

35. Are you male or female?

- Male
- Female

36. How many children do you have that live at home? children

37. Are you Hispanic or Latino?

- Yes
- No

38. What is your race?

- American Indian or Alaskan native
- Asian
- Black or African American
- White
- Other (please specify) _____

39. What is your highest level of formal education completed?

- Less than 12th grade
- High school diploma or GED
- Some college but no degree
- Completed 2 year degree (AA) or other vocational degree program
- Completed 4 year degree (BA or BS)
- Graduate school or professional school

40. Is greater than 50% of the total household income generated off farm?

- Yes
- No

41. What is the farm/ranch's gross income for 2007?

- \$0-\$10,000
- \$10,001-\$25,000
- \$25,001-\$50,000
- \$50,001-\$100,000
- \$100,000-\$250,000
- over \$250,000

Thank you again for your participation!

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BIOGRAPHICAL SKETCH

Kyle Landrum was raised in a rural community in DeLand, Florida. Growing up, he was active in 4-H and around agricultural as his mother was a University of Florida IFAS/Extension agent. Mr. Landrum attended The University of Florida where he earned his Bachelor of Science in food and resource economics. Upon graduation from the University of Florida, Mr. Landrum knew he wanted to continue his education. Given the opportunity by the Agricultural Education and Communication Department at the University of Florida, Mr. Landrum pursued his Master of Science, with a concentration in leadership development. Mr. Landrum plans to obtain a career within the agricultural sector to begin his climb to the top of the corporate ladder with his wife Katelyn by his side.