A Global View of Agricultural Communications

by

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Table of Contents

Abstract

Agriculture is a global industry and instructors and employers are recognizing the need to improve communication about agriculture worldwide. This can only be done after learning and understanding what is currently being communicated and how it is being communicated to producers and consumers. The purpose of this study was to find what agricultural communications looks like on a global scale, and how it is used. The research questions of what methods of communication about agriculture are used in specific countries to producers and to consumers; how are the channels of communications similar by geographic region; what is the perceived importance of agricultural communications locally within a region and globally; what impact does agricultural communications have for the national and international agricultural industry were used for the research.

Through diffusion of innovations theory and the concept of globalization, a closer view of agricultural communications was achieved through qualitative interviews of international students in the College of Agricultural Sciences and Natural Resources of Texas Tech University. In the findings, there is not a standard agricultural communications sector in the countries represented through the participants. However agricultural communication campaigns have been used in the past. It is recommended for there to be continued efforts and increased communication about agricultural information to consumers and producers would greatly benefit the communities to help understand agriculture products and the global impact of the industry.

Chapter 1

Introduction to the Study

Globalization describes the two-way bridge of social relations worldwide that creates a link between distant areas and connects different localities miles away (Giddens, 1990). Globalization includes the study of how things are transferred, adopted, and impacted between communities, states, and nations on the global scale. Communication has to be used throughout the process in order for globalization to occur. This pertains to agriculture practices because of the international industry, marketing, production, and trade of products and commodities. Shinn, Wingenbach, Briers, Lindner, and Baker (2009) addressed the need to understand the trends in agricultural globalization and knowledge by asking for future researchers to identify what essential knowledge is required for professionals working in international agricultural and extension education in the future.

Meyer (2007) stated how modern world culture is globalized and has been for so long it can be considered natural law, and because of this, will continue to be a globalized society and culture. The concept of globalization described by Brown (2008) is "it encompasses a growing interconnection between peoples, nations, cultures, governments, environments, economies, and indeterminate global networks that are ultimately bound by the spherical shape of the Earth" (p. 45). Albert (2007) described culture as playing as large of a role in globalization as the politics and the society because as politics and social aspects of a region may change, the culture is a part of how the people identify themselves and is much harder to change or impact.

There are certain characteristics that describe globalization, explained Connell (2007), and one of them is the structural hybridization creating new organizational and cultural options. This means that two or more ideas, principles, practices, or methods have come together to create a new hybrid of the originals. Hybrids exist because the new product never completely adopts the new ways and never entirely relinquishes the original aspects. Just like hybrid breeds and species in science, this works for companies, organizations, families, or even entire cultures.

In the last 50 years, globalization in politics and cultures has developed an increase in the structure and global cultural elements within the industry and workforce (Meyer, 2007). There are now more options to choose from and work with because of this expansion of interdependencies and transactions around the world due to globalization; however, globalization is not only an interdependence but an involvement and stake in local and national society around the world (Meyer, 2007). In order to create a worldwide understanding of globalization, dialogue and transfer of intellectual traditions between regions is required (Connell, 2007).

This is important in order to understand and increase the connectivity throughout the world among the professional and university societies in the agricultural industry (Shinn et al., 2009), because these employers and educators have an obligation to international development and agricultural extension and education. Simply, there must be a connection and sharing of information in order to develop a global society, and it is the responsibility of the professional and educational personnel to increase the knowledge and requirements of a global understanding.

The best way of accomplishing this knowledge of understanding is by following transnational practices and not staying hidden in the corporate world of America (Connell, 2007). This is trying to convince individuals the best way to understand globalization is by going out and experiencing the global society and participating in the distribution of globalization.

Globalization and Agriculture

Globalization in the field of agriculture and industry of food is not a new idea, and for many scholars of globalization and agriculture, it is not even news (Coclanis, 2003). In the early 1990s, the idea of a multifunctional agriculture was created using European framework to encompass all products and services that are the result of agricultural activities impacting the economy and society (Losch, 2004). Globalization is spread through communication, and this is true for agriculture as well. When the ideas of "globalizing food and feeding globalization" are combined, a result that is not supported or found in a majority of literature is created (Phillips, 2006, p. 38). Even though the knowledge of a relationship exists, there is a gap in understanding how the relationship works.

Agricultural extension and advisory services plays an important role in aid for lesser developed countries (LDCs) (McCole, Culbertson, Suvedi, & McNamara, 2014). In 1984 the Association for International Agricultural and Extension Education (AIAEE) was established to increase the understanding of agricultural education and extension around the world (Garrett et al., 2014). Shinn, Wingenbach, Lindner, Briers, and Baker (2009) defined international agriculture and extension education (IAEE) as a "knowledge exchange system that engages change agents in a participatory

persuasive process of educating global stakeholders and preparing future farmers, agricultural specialists, and agribusiness leaders in a changing world" (p. 83). This includes increased international agriculture programs in colleges and universities in the United States and other countries around the world.

The globalization of agriculture began in the 19th century (Coclanis, 2003), and during this period, innovations in farming, communications, marketing, and transportation created a shift toward commercialization and contact with agriculturalists around the world. Technology advances through the 20th and 21st centuries improved not only the trading of agriculture products but how we communicate and educate about agriculture.

There are many reasons for the increase in agricultural globalization. Increased food exports are a result of the lowered trade barriers from the Uruguay Round of General Agreement on Tariffs and Trade (GATT) in the 1980s (Phillips, 2006), and in 1995, the development of the World Trade Organization (WTO). The North American Free Trade Association (NAFTA) is a newer organization for international trade and is a department of the Free Trade Association for the North American continent to trade agricultural products between the US, Canada, and Mexico ("North American Free Trade Association (NAFTA)", 2016). The Trans-Pacific Partnership (TPP) is an unapproved trade deal that will focus on the countries bordering the Pacific Ocean to promote the American economy by focusing on creating jobs for the middle class citizen ("the Trans-Pacific Partnership", 2016). In order to fight the growing food and hunger problems of the 21st century, there needs to be international collaboration for more understanding of the world and the tools of exploration required to gain that

knowledge (Cox, 2002). Collaboration is the reason there is an increase in agricultural product sharing between countries and regions resulting in globalization of agricultural products and goods.

Globalization has always been a part of agriculture, Phillips (2006) clarified, because the continuing trade of food between regions, countries, and continents throughout history is incorporated under the exchange of ideas and cultures definition of globalization. Phillips (2006) described how this concept of a new and modern agriculture industry is a result of consuming certain food production regimes, as well as incorporating certain types of food knowledge. By picking and choosing which food production styles and food knowledge sharing between regions, the agricultural industry has created the current global agricultural society perceptions.

Individuals traveling is another way to think of agricultural and food globalization: "migrant laborers, refugees and resettled populations, immigrants, students, business consultants, nutritionists, agronomists, tourists, and other travelers all play a role in the reproduction and expansion of ideas about food and food systems" (Phillips, 2006, p. 45). When individuals visit new places, whether in the same country or a new one, they experience new food types and production styles (Phillips, 2006); they will in turn bring the ideas of what they have experienced home with them and impact the local food and culinary cultures.

Educating about Globalization

In order to understand and grow agriculture globally, it is necessary to know what agricultural communications tools are currently being used in different countries, both with consumers and producers. This knowledge can then be implemented into

coursework for colleges and universities as well as companies and organizations who work abroad. There is a need for an available global perspective for not only students, faculty and instructors, and individuals who will eventually work overseas, but all professionals in agriculture to increase diversity appreciation and prepare for careers globally (Acker & Scanes, 1998).

Briers, Shinn, and Nguyen (2010) found an increase in students' desires and readiness to experience international learning, gain a global perspective and international experiences to prepare for leadership roles in a global society. Colleges of agriculture have the responsibility to provide the positive vision and excitement for internationalization and the importance of it in today's global society (Brooks, Frick, & Bruening, 2006). Although a student may not initially express an interest in working for an international business or abroad, it is important to prepare them for multiple careers where their job or a component of their job may have international responsibilities (Acker, 1999).

Employers today are hiring college of agriculture graduates with the expectation they will have the ability and skills needed to work in a global workplace and understand the importance of globalized agriculture (Irani, Place, & Friedel, 2006). By reviewing the impact of globalization on agriculture and communications, it can be understood what communication methods are being used in different countries in the agricultural industry. This information can help shape future agricultural communications programs and international workforce communication policies.

Agricultural communications can be defined as the sharing of information about agriculture and natural resources by using appropriate communication

techniques through the most effective and efficient channels (Gibson, 2015). This can be simplified as communication that provides relatable insight to the agricultural industry, producers, and consumers using a variety of messages and channels to send information to audiences.

As technology continues to improve, agriculture will have to embrace each new communication and technology tool in order to maintain the sharing of information to the non-agriculture public (Rhoades & Aue, 2010). Technology options are as diverse in the United States as the audiences. These changes and advancements in technology are inevitable along with the transfer of the technology internationally. Globalization was defined before as the transfer of goods, ideas, and products across state, country, and continent boarders. Communication plays a vital role in this transfer of items.

International agricultural communications applies the idea of using multiple communication methods and channels to share information about agriculture to every country. Educating future agricultural communicators about these changes in communication technology and the communication methods used in other countries is important to understanding how agricultural communications happens in different regions.

Statement of the Problem

If globalization and agriculture are going to continue to evolve together as they have in the past, understanding how they build off each other and what communication techniques are effective in different regions and countries should be important. There is a lack of understanding in the global agriculture industry and the

communication methods used in the global society. This is a problem because graduates of agricultural programs in universities and colleges need to be knowledgeable of global agriculture and how to communicate within the industry worldwide. Once there is an understanding of the communication gaps in the different regions, programs can be researched on how to bridge them. This could include the increase of communication technology or of communication channels offered for the wide range of audiences. This study can be used to identify the communication practices and problems for future research.

Purpose of the Study

This is an exploratory research study to find results that can be used to modify and update agricultural communications curriculum on the undergraduate and graduate levels of university and collegiate instruction. The communications methods studied and utilized in technologically advanced countries does not always match what is used or needed in developing countries.

This can also help provide a guide to what is being done in various regions around the world when it comes to agricultural communications and how it works with education and extension. Businesses and companies can utilize this to see which methods of communication have a better response in different countries where they operate on the consumer and producer levels.

Research Questions

This exploratory study seeks to determine how agricultural communications is utilized, understood, and how it impacts different regions around the world. This

descriptive case study was guided by four research questions relating to international agricultural communications:

1. What methods of communication about agriculture are used in specific countries to producers and to consumers?
2. How are the channels of communications similar by geographic region?
3. What is the perceived importance of agricultural communications locally within a region and globally?
4. What impact does agricultural communications have for the national and international agricultural industry?

These research questions were chosen through the process of trying to identify international agricultural communications. The researcher wanted to establish what was currently being used in various countries around the world. From here, the ability to find trends based on regions was necessary. It was crucial to highlight the impact agricultural communications have in other countries on their local level and the global level. Just because the communications has an impact, is it considered important is a question that should be addressed. These are important to answer in order to understand how important agricultural communications is and the impact it has on other countries and regions around the world.

Significance of the Study

The importance of globalization and agriculture is an ever continuing and evolving matter because the exchange of security and cultural relations through trade with other regions contribute to various ways of life, and agriculture has the ability to improve the quality of life (Brooks et al., 2006). The United Nations (UN) created a

mandate after World War II to form a new era of international cooperation because it realized this is an area that is not widely studied in relation to the scale of food and globalization (Phillips, 2006). Globalization is a continuing process, but an uneven and nonlinear process (Coclanis, 2003). It is uneven because it does not happen in every country around the world at the same rate, and nonlinear because the impacts of globalization and how they are adopted is not the same in each country. This trend will continue until there is a better understanding of how communications can impact and increase agricultural production.

Assumptions of the Study

An assumption of this research study was that the participants would be able to understand and interpret the interview questions since English may not be their first language. The participants will also have a background and experience in the agriculture industry. Another assumption was that all the international students studying in agriculture are willing and able to participate in the study.

Definition of Terms

1. Agricultural communications: any form of informational or commercial communication about agricultural products or the industry.
2. Change agent: a person who acts as an intermediary communication link between sources of innovations and the intended audiences.
3. DC: developed countries are industrialized nations and can be referred to as the North (developed countries, 2016). For a complete list of current developed countries see Appendix A.

4. Globalization: the process of people, countries, and cultures intermingle and exchange ideas, and innovations worldwide.
5. IAEE: international agriculture and extension education is the sharing and increasing of agriculture knowledge and the ability to transfer that knowledge within and to different countries (Shinn, Windenbach, Briers et al., 2009).
6. ICT: information and communication technologies are any technology that is utilized in the gathering and sharing of information.
7. Innovations: any idea, tool, or technology that is new to an audience or region.
8. LDC: least developed countries, or developing countries, are countries with low-income and are categorized based on gross national income, human asset index, and the economic vulnerability index of the countries (What are least developed countries (LDCs)?, 2016). For a complete list of LDCs see Appendix B.

Delimitations of the Study

This study was limited to participants studying in an agriculture field at Texas Tech University. Their home country could not be the United States. The interviews used for this research study were conducted face-to-face. There were no phone, webcam, email, or paper style interviews during this study.

Country, region, and continent of origin of the participants were not limiting factors for this study except the United States. US citizens were not used for this research study. All countries were available to be researched. Male and female students were allowed to participate because sex was not a limitation. This study did not use participants enrolled in undergraduate level programs.

Limitations of the Study

One of the limitations to this research was the small number of participants being used to help identify a larger population, and a narrow range in ages to represent the population. Because of this, a clear and accurate understanding of the country is not possible. Misinterpretation and language barriers may have caused inaccurate data because of misunderstanding questions and answers on the part of the researcher and the interviewees. This is because the participant may respond to a question thinking one way, but the individual analyzing the responses may interpret the statement a different way. This causes an inaccurate understanding of how they think, understand, and use communication for agriculture in their country. Another limitation was the inability to gain a full representation of each region because of the limited availability of international students. Non-generalizable findings are a limit to the study.

When conducting the interviews with the participants, possibility of bias was present. Not all the participants had a background in communications, but had knowledge of how communication about agriculture was shared in their countries. They had an understanding of the communication channels and methods in their countries but not an understanding of international agricultural communication as a whole.

A possible limitation from the participants was their interest or focus while at Texas Tech creating a participant bias. Grants, scholarships, or research emphasis may have swayed the answers to fit their interests. This could cause a trend in the results based on the individuals focus and not represent the whole country.

Conclusion

The expansion of globalization in agriculture will continue to grow with technology advances in the future. Because of the ability to easily travel to new places and share information, communication audiences are becoming more global. In order for agriculture to remain at a peak of communication to consumers and non-agriculture audiences, agricultural communication needs to look deeper at the global international scale. This can be achieved by implementing the various communication channels and methods from different countries into agricultural communications educational programs.

Chapter 2

Literature Review

This literature review was conducted to aid in answering the research questions of this research study:

1. What methods of communication about agriculture are used in specific countries to producers and to consumers?
2. How are the channels of communications similar by geographical region?
3. What is the perceived importance of agricultural communications locally within a region and globally?
4. What impact does agricultural communications have for the national and international agricultural industry?

The following literature review provides background information to help in understanding this study. This includes information on diffusion of innovation, international agricultural communications and the understood importance and impact of agricultural communications locally and internationally.

Importance of Agricultural Communications

Leeuwis (2004) explained there has been a pattern of agricultural information exchange through people in advisory roles or positions throughout world history including the ancient city and countries of Mesopotamia, Greece, and Egypt. Today, there is still a practice of agriculture extension globally. Many of the translations of extension mean “lighting the pathway ahead” in Holland, Indonesia, Germany, and Austria; “advisory, education work” in Great Britain, and Western Europe; “rural

guidance" in Korea; "simplified message for common man" in France; and "training or improving skills" in Spanish speaking countries (Leeuwis, 2004).

Globalization and the spreading information and knowledge through communication is a larger challenge than most realize. Because of low access to information sources and literacy in LDCs, the producers may not have access to or understand the information being presented to them, resulting in a limited exchange of knowledge to only inside their own social interactions (Parikh, Patel, and Schwartzman, 2007). It is necessary to aid producers with technology that is useful to them and their needs (Moriba, Kandeh, & Edwards, 2011). Parikh et al. (2007) continued by describing how this information, which can include markets, is critical for all those involved in the agricultural market chain to make decisions in the best interest of the products.

Phillips (2006) asked the question of how many local agricultural practices are changed or cause change because of globalization, and how can they be supported if positive. The response is "given the evidence of international efforts to produce globally astute farmers, it would seem imperative to investigate how farmers and farm workers who are not crossing national and international borders are engaging with such projects" (Phillips, 2006, p. 45).

Several LDCs focus on the issue of food security by increasing their own domestic food agriculture production to try to eliminate the dependence on food imports (Wynn et al., 2013). Improving the availability of technology in these countries is required for the LDCs to grow and prosper (Wynn et al., 2013). Many

producers in rural regions of India said technologies had improved impacts on their lives and communities (Moriba et al., 2011).

According to Parikh et al. (2007), consumers in many developing countries are just now beginning to take interest about their food choices and are wanting to increase their education about the agriculture industry. In addition to the consumers, producers are increasing their knowledge from just the local community understanding to incorporate global agricultural awareness with the help of extension agencies (Parikh et al., 2007).

The food supply and availability of food was critical in helping develop, maintain, and grow civilizations throughout the ages (Godfray et al., 2010). The growth in agricultural globalization has increased the ability to provide food aid to countries with the greatest market potential since this is led by the United States and other food-donor countries who are able to export (Ufkes, 1993). Continued communications about agriculture and the increase in knowledge about the industry can grow the food availability to many LDCs by teaching the developed countries (DCs) how to manage, transport, and store produce in countries requiring food supply aid.

The global cooperate power of the food industry is a product of agricultural workers such growers, traders, marketers, financial advisors, and grocers as a group (Phillips, 2006). The agriculture industry incorporates many different positions to work together to create a cohesive network. This idea describes how communication and marketing of the agricultural industry and agricultural products vary between regions and countries because of cultural norms and languages. These are examples of

having the global perspective for communicating and working in a global workforce for agriculture.

In terms of what is being used and done in different countries around the world, "the structure and organization of food systems vary greatly between developed and developing countries, between local and global food systems, and along a multitude of other dimensions including a particular region's economy, population demographics, geography and culturally-specific diet requirements" (Parikh et al., 2007, p. 2). Simply put, many factors determine the impact of agricultural globalization a country or region is experiencing or has experienced in the past.

Changes in communication and transportation technologies through globalization have created easier and farther reaching exchange of goods, travelers, and their ideas (Leeuwis, 2004). Because of modern globalization in agriculture, there have been changes in world agricultural trade causing an increase in agricultural trade-value in real terms and a shift from bulk commodities to consumer-ready, high-value goods (Romano, 2006).

Romano (2006) continued by saying these changes are occurring because of the globalization of agriculture and trade, but are having a negative impact on LDCs because they are unable to meet the changes in the product demand. This is why the LDCs have increased trading with similar countries (Hazell & Wood, 2008) due to the fact they cannot meet the demand of the DCs.

To address this, Cox (2002) stated the need for the spreading of knowledge is crucial for communication among everyone working with food and agriculture

production and the environment from the corporate and government researchers to the farmers and field workers.

International Agricultural Communications

Channels

Rhoades and Aue (2010) discovered agricultural companies decide which new communication channels and technologies, such as social media platforms, to implement based on their audiences' preferences and desires. Knowing what communication technologies are prevalent with audiences is important in reaching these audiences and sharing the information. This concept can be used within a country as well as for communication between countries. Because of high illiteracy rates, sharing information about agriculture through written communication channels is not an effective option (McCole et al., 2014).

In 2000, information and communication technologies (ICT) were used in agriculture. ICT can be defined as the technology dedicated to the gathering, saving, and sharing of information (Cox, 2002). The radio and telephone were early examples of ICTs by gathering and sharing information, and now, websites and smart phone apps are more complicated forms of ICTs that can gather information from multiple sources, save it in an organized format and share the information with individuals. McCole et al. (2014) said in the agricultural industry, the use of ICTs for information transfer was limited to radio, but more recently has grown to incorporate mobile phone technology. Mobile phone access in Sub-Saharan Africa, Asia, and Central America was over 50% in 2009 offering advanced opportunities to share knowledge through private and public channels (Aker, 2011).

ICT is a growing digital communication channel in many developed and developing countries around the world (Kante, Dunkel, Williams, Magro, & Traore, 2009), ICTs have continued to expand into the agriculture industry on the producer, consumer, and corporate levels. Thysen (2000) explains ICT will involve aiding farmers in managing their farms, consumers in gaining knowledge about the agriculture used for their food, and extension outreach with emails and chat rooms for questions, concerns, and information sharing. According to Warschauer, Said, and Zohry (2006), Egypt was the country with this highest rate of ICT adoption.

The Govi Gnana Seva group in Mexico has employees who walk through the local markets every day to find the prices of goods for the day, and share the information on a posted board in the market, on a website, and the next day's newspapers and radio broadcasts (De Silva & Ratnadiwakara, 2008). Parikh et al. (2007) described radio as being the most practical way to communicate with the remote agricultural producers in LDCs to eliminate the geographic access and literacy barriers. The Developing Countries Farm Radio Network (DCFRN), now Farm Radio International, is a non-profit organization from Canada that has been supporting broadcasters in developing countries to increase farming aid to rural communities since 1979 and is currently serving 460 organizations in 38 African countries (Farm Radio International, 2016).

Despite the challenges of geography, linguistics, and technology, ICTs are a method to aid the small scale producers and improve their success by creating a global information and knowledge society (Parikh et al., 2007). ICTs have showed positive research results and impacts on income in several studies around the world (De Silva

& Ratnadiwakara, 2008), along with phone calls to reduce travel costs to producers. Mobile phones have had rapid adoption rates because they do not require a large and expensive network resulting in growth of market participation of producers in rural areas (McCole et al., 2014).

ICTs have been used for fishermen in India, grain farmers in Niger, and maize producers in Kenya all to show a positive and growing relationship with knowledge transfer, raised income, and higher market prices (De Silva & Ratnadiwakara, 2008). The Kenya Agricultural Commodity Exchange, Ltd. (KACE) provides information through physical information centers as well as on short message services (SMS) and voice recordings that can be reached at a toll-free phone number (Parikh et al., 2007).

In Finland, 3% of farmers used the Internet in 2000; however, New Zealand dairy farmers used computers and the Internet at a much higher rate (Thysen, 2000). The main reason for using the Internet was to check constantly changing information such as weather and market prices, but few farmers found it worthwhile to use at the time (Thysen, 20000). Internet access and adoption is growing around the world. India has the highest rate of growth at 4.1% in 2010 and 5.6% in 2016, but the average growth for LDCs is from 3.6% in 2012 to 4.9% in 2016, and in DCs, 4.3% to 5.5% (Goldstuck, 2012). This shows the increase access to connect to the Internet, but there is still room for improvement and a large portion of populations are still without access.

Another option for reaching the remote producers is web based technology. Initiatives using this method are being developed and implemented to provide market prices, agricultural practices, and information sharing networks between extension

agencies, producers, and researchers in regions including Africa, Caribbean, India, Central America, South America, and United States (Parikh et al., 2007).

India's version of these web based networks, the Multi-Commodity Exchange (MCX), works through the postal service so the information can be found in a central location (Parikh et al., 2007). South Africa's Agricultural Geo-referenced Information System (AGIS) is a system used for extension agents to access information about agriculture, and it serves as an online question and answer technology for producers and extension agents to communicate (Parikh et al., 2007).

Producers in Mahrashtra, India use a remote bookkeeping system for the non-profit organization, Warana Cooperative, so they can monitor producer outputs, land records, and other types of documents (Parikh et al., 2007). Warana Unwired is a program that replaced Warana Wired by sending out information through text and SMS messages instead of posting the information to kiosk stations around the region, and this has had a significant impact on the farmers and their produce (De Silva & Ratnadiwakara, 2008).

In Mali, face-to-face communication from the village chief was the preferred method of communication, and the researchers concluded this was because of value of oral communication that is rooted in the culture (Kante et al., 2009). The Indigenas de la Sierra Madre de Motozintla (ISMAM) transfers information to the members of different Central America countries by communicating face-to-face at community meetings, monthly assemblies in 34 regions, and at an annual general assembly (Nigh, 1997).

One issue with general meetings is the information is coming from the top officials down to the producers and does not always tailor the message to different producer needs or questions as it would with more bottom up communication (Leeuwis, 2004). Another problem with meetings is the conditions and availability to travel to the meetings such as in the African regions. Aker (2008) found road conditions in Niger were so poor that travel was not possible for meetings or to markets. Because of difficult transportation, extension agents' travel to rural areas is limited and restricted (McCole, 2014).

Messages

Peer-to-peer communication is the sharing of agricultural knowledge between members in the same stakeholder group and is easier in the DCs because consumers and producers have access to global and local sources of knowledge (Parikh et al., 2007). Oleas et al. (2010) describes horizontal communication as information sharing between producers with similar social and economic charactersitics. Peer-to-peer is necessary in all agricultural regions because the spreading of information about what has worked and what has not in terms of technology, methods, and trouble management is required for successful agriculture production for the small rural farmers in developing countries (Parikh et al., 2007).

End-to-end communication is the sharing of information and knowledge between opposite ends of the market chain such as producers and consumers (Parikh et al., 2007). This is usually achieved with the aid of a third party in developed countries, agricultural communicators, (Parikh et al., 2007) but is nonexistent in developing countries. Vertical communication, or top down communication, causes limitations to

reach producers because extension agents are in charge of being the intermediary communication link between to two ends (Oleas et al., 2010). There are many reasons why this could be occurring with location, language, and social culture being different even with people in the same country (Parikh et al., 2007). This indicates there is a divide between the rural and urban areas of developing countries as well as in developed countries.

Impact of Agricultural Communications Globally

Hazell and Wood (2008) demonstrated how agricultural globalization increases the amount of trade occurring between the LDCs who used to be unable to participate in trading because, in part, of the increase of ideas and technology sharing as stated previously. Coclanis (2003) explained how global agriculture is a product of economic growth through industrialization defined as the "institutionalization of historically high levels of economic growth through the increasingly systematic employment of scientific knowledge in the economic realm," (p. 74).

Hazell and Wood (2008) explained how many types of countries, DC and LDC, are changing the marketing chain flow with liberalization and globalization. Countries with varying levels of development are using globalization to incorporate new ideas and methods into the chain of events for agricultural products. Trade for agricultural products and goods internationally has increased by 10 times more what was being traded in the 1960s (Hazell & Wood, 2008), because of the globalization and liberalization of markets in LDCs and the technological developments in communications and transport. With the increased effectiveness and accessibility of

communication between producers and consumer, a better knowledge society can grow (Parikh et al., 2007).

People who form a communication channel between their local culture or community and different, distant regions or nations are known as "cultural brokers" (Nigh, 1997). One of the major concerns with the transfer of information and knowledge is ensuring the correct message is being shared with the right target in the appropriate way to ensure the information will be heard and understood (Cox, 2002). The role of the cultural brokers is to monitor the messages and make sure they are clearly expressed, because misunderstanding and poor communication would be ineffective or possibly dangerous to the community or culture (Cox, 2002).

Donors and NGOs sometimes provide resources based on their desires or the sectors they choose rather than the needs of the country (Shinn, Ford, Attaie, & Briers, 2012). People working in international agricultural development should use communication methods that demonstrate respect, trust, and appreciation for the local opinion leaders and their authority, and this is done by listening to the needs of the community and trying to meet those needs (Shinn, Ford et al., 2012). In rural regions of Africa, interpersonal communication from the respected leaders of the communities was the preferred method of receiving information by producers (Kante et al., 2009). This proves communication is more likely to be received by rural audiences when it comes from an opinion leader, and NGO projects and donor funds are more likely to be beneficial when they are directed at the specific needs of individual areas the leaders suggest. The focus for sustainable development in LDCs should be on the

people, culture, and knowledge exchange in order for all sides to benefit and grow (Shinn, Ford et al., 2012).

Rhoades and Aue (2010) explained how American agricultural media understand and uses Web 2.0 technologies, and the importance of knowing how their audiences prefer to receive the information. Websites, blogs, and social media tools such as Twitter and Facebook were being used by agricultural media in America because those were the popular ones (Rhoades & Aue, 2010).

Workshop style communication is growing for farmers in Central America starting with the ISMAM in Mexico and reaching out to Nicaragua and Guatemala indicating the need and desire to have information shared with producers (Nigh, 1997). Agricultural globalization is not only changing how information is exchanged, but also the type of information being exchanged (Bee, 2000). Women are now working in paid employment positions in the grape industry in Chili due to the increase in demand and change of perceptions of women. It is important to continue to see the many ways globalization and communications can shape and change a society because of the spread of agribusiness (Bee, 2000).

Because of the continually growing globalization of the agricultural industry, Irani et al. (2006) expressed the value of students who take part in an international experience while in their agricultural program of study. Students who have traveled internationally said they understood the role of globalization after the trip (Lumkes, Hallett, & Vallade, 2012). These same students expressed the importance of globalization on developing cultures and societies and the impact globalization will have on their future careers (Lumkes et al. 2012).

The communication links and the individuals or brokers who create them can help communities and regions overcome travel issues, increase market awareness, and increase the income for producers (Nigh, 1997). As agricultural communicators in a global industry, creating a better product and increasing knowledge should be the main priority and where the focus for the end goal should be.

Theoretical Framework

This research study utilized the diffusion of innovations theory and Rogers' (2003) model of the process to examine how information is shared and the communication methods used in various countries (See Figure 1.1). Diffusion of innovations is effective when analyzing the process of information sharing and knowledge transfer about innovations.

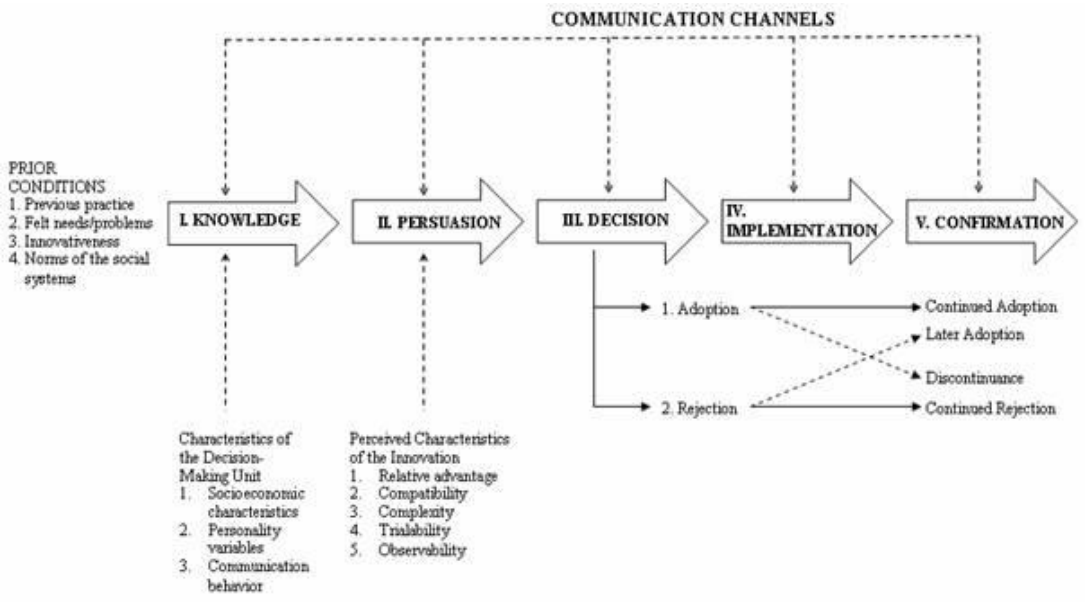

Figure 1.1 Model of diffusion of innovations (Rogers, 2003, pg.170).

Wynn, Coppedge, and Strong (2013) said the diffusion of innovations are evaluated by the innovation, communication channels, and the social setting of the

communication. There are three important aspects to the diffusion of innovation consisting of the innovation, communication, and social system because it is necessary to communicate the innovation to producers in all social networks (Oleas, Dooley, Shinn, & Giusti 2010). Communication channels used for diffusion are the second element of the theory after the innovation itself (Wynn et al., 2013).

This study focused on the Rogers (2003) model and examined more specifically the role of the change agent and his or her ability to communicate to audiences in different regions around the world. The researcher studied the different methods of communication used, who the main sources of the communication are, and the type of messages shared. In relation to Rogers' (2003) model, the researcher examined how participants thought change agents were utilizing communication to disseminate knowledge and information in their home countries. From here, the researcher inspected what would be the best ways for change agents to share information and communicate with locals in different countries based on the participants' knowledge of the countries and the people.

Rogers (2003) states an innovation is "any idea, practice or object that is perceived as new by an individual or other unit of adoption" (p. 12). The diffusion of innovation explains the steps along the way for an innovation to be spread and adopted to various audiences. There are five steps creating the diffusion of innovation beginning with receiving initial knowledge of an innovation, then moving to creating an opinion about the innovation, to choosing to implement or reject the innovation, to the act of implementation, and finally the reinforcement of the decision that was made about the innovation (Rogers, 2003).

Communication is used in every step of the diffusion of innovations model and the role of the change agent is to provide this communication to the intended audiences (Rogers, 2003). This connection is required because there is a gap between the audiences and the companies including technology, languages, education, socioeconomics, and attitudes or beliefs. Rogers (2003) describes this practice as the change agent having one foot in each world in order to understand both sides and be the communication between them. Change agents are the people responsible for starting the diffusion of innovation by creating that first step of awareness and knowledge to the audiences. The change agent also moves the communication process forward. Opinion leaders or respected officials of communities or regions can also be a bridge between the producers in the area and the sources of information or innovation (Oleas et al., 2010).

Oleas et al. (2010) described opinion leaders being selected by the community based on their credibility and trustworthiness mostly, but gender, ethnicity, and geography demographics have an impact as well. The leaders or elders in the community possess knowledge and appreciate the cultural values which gives them influence over how, when, or if a region will adopt and implement a new innovation (Shinn, Ford et al., 2012). These opinion leaders have the ability to influence the communities or regions they are in by approving and adopting new innovations causing others to do the same so they can maintain their status in the social system (Oleas et al., 2010).

Change agents cover a wide range of professionals from teachers and agriculture extension agents, to salespeople and development workers (Rogers, 2003).

Audience targeting is a common method change agents use to communicate with different audiences. This is done by creating a communication delivery method based on the specific audiences, or by tailoring the message being communicated for each individual to make it more personal (Rogers, 2003).

Overcoming the barriers of miscommunication and understanding can be aided by targeting communication to an opinion leader in the region of the audience to gain more trust from the audiences (Rogers, 2003). In many remote and developing areas, the current communication channels were identified as inconsistent because of the low level of trust the producers had for the source of the information and the channel of the message (Wynn et al., 2013). Public and private demonstrations targeting innovators and early adopters are also used by change agents to create a faster rate of adoption (Rogers, 2003). This is to create trust and credibility between the change agent, the opinion leaders, and the audiences.

Change agents have realized the importance of targeting the key community influencers to implement innovations into social networks (Oleas et al., 2010). In the Caribbean, producers rely on the opinions and advice from the respected officials in the community, creating a large role for the opinion leaders to fill in order to diffuse innovations and information. The change agent is responsible for promoting an environment where the opinion leaders can lead the diffusion and adoption for the community (Oleas et al., 2010).

According to Rogers (2003) a change agent can fill seven roles during the process of innovation diffusion and through these roles, the five stages of innovation

diffusion occur. The following roles are defined by Rogers (2003) and their relation to this research study:

1. Awareness of need: During this stage, the change agent brings information about new innovation to the audiences and the possibilities it provides. With this information, they want to create an awareness in the audience that they need a change.
2. Information exchange: After this need is identified, the agent must build a relationship with whom they are speaking. This increases trust and credibility to the individuals and the probability of them becoming clients of the new innovation. However, building a face-to-face relationship can be difficult because of limited access to remote rural agriculture areas.
3. Diagnose problems: The change agent must be understanding of the client's needs as they assess the problems. They must understand the client's background and way of life when suggesting innovations that will help solve these problems.
4. Intent to change: Once the problems have been discovered, it is the change agent's job to convince the client why they need to change. This change can be purchasing new equipment or technology, changing management or practices, or becoming more open to a new idea or process.
5. Intent to action: After the intention has been made to make a change, it is the change agent's responsibility to guide clients on the actions they should take to implement the innovation.

6. Ensure adoption: With the innovation now in place, the change agents have to help make it permanent. This is done by continuing to support the client with information and knowledge about the innovation and how to work it to ensure they continue use and do not discontinue the innovation.
7. End the relationship: This is something the change agent does so they can shift to a new innovation or a new audience. They should try to leave the clients with enough information so they can become new change agents for the innovation.

An innovation is any idea, item, or practice that appears to be new to an individual or group (Rogers, 2003). This can be used for international agricultural communicators around the world. Rural producers and urban consumers can adopt new innovations such as technology and practices in production and ideas and beliefs in consumption.

Conclusion

This chapter provided and reviewed the important information in relation to the components of this research study. The researcher was able to use the information in the chapter to help with analyzing and interpreting the research data from this study. Support for the findings and conclusions was used from studies completed by other researchers.

Chapter 3

Methodology

Restatement of the Purpose and Research Questions

There is a lack of knowledge about how agricultural information is transferred in different countries. Students are showing more interest in global communications and/or careers abroad, and some curricula at the collegiate level are beginning to contain an international emphasis. Many universities have entire degrees dedicated to international business. The purpose of this study is to address the growing interest in international agricultural communications, describe agricultural communications in foreign countries, understand how it is used, and the impacts it has on countries worldwide. This study was guided with the following research questions:

1. What methods of communication about agriculture are used in specific countries to producers and to consumers?
2. How are the channels of communications similar by geographical region?
3. What is the perceived importance of agricultural communications locally within a region and globally?
4. What impact does agricultural communications have for the national and international agricultural industry?

Findings gathered from this research will contribute to the conclusion. These can then be taught in undergraduate and graduate courses at Texas Tech University to expose students to and prepare students for careers that involve communicating about agriculture to a global audience.

Qualitative Research

This study is a qualitative case study. Merriam (2002) describes qualitative research as the attempt to understand the phenomenon of a participant's perspective. An interpretative qualitative research study uses the researcher as the data collection and analysis instrument to gain an understanding of the meaning people create about their life and experiences and creates a descriptive analysis of those understandings (Merriam, 2002). Cases are chosen to be researched that demonstrate various views of a problem, process, or event (Creswell, 2012).

Case Studies

Creswell (2012) states case studies are the exploration of systems bounded by space and time with detailed collection of multiple sources. Because this research focuses on gaining insight to agricultural communications in various countries, a case study was an appropriate choice.

Case studies are bound to focus on a single aspect in the case to create a more in depth analysis (Merriam, 2002). The main interest of international agricultural communications is to see what is being used and what the messages contain. The selection of the case study is chosen because it serves a purpose and is of interest to the researcher (Merriam, 2002). The interest and purpose of this research study is to discover current and future communication trends for agriculture in countries around the world to understand what needs to implemented for international agricultural communications.

The research focus for this case study was bound by the current communication methods and messages to producers and consumers about the industry

of agriculture. This research was not limited to one area in particular, but researched as many countries in as many regions possible to gain a more global understanding of agricultural communications. In order to gain this insight, interview research was collected only from agricultural graduate students. Having only one source of data collection is not recommended for case studies (Yin, 2009). Due to this fact, the researcher relied on previous research, journal articles, and web based information along with the interview data.

Research Design

This descriptive case study is considered exploratory because it seeks to answer the question of how agricultural communications is used on the global scale. This will be found by using literature and interview research. The purpose of this is to develop and implement a more international outlook on agricultural communications.

Yin (2012) said exploratory research answers a specific question through field work and data collection. This type of case study fits the research study because there is an overarching question of what does agricultural communications look like on a global view.

Instrument

The primary instrument for collecting and analyzing data was the researcher. Because of this and human participants as data sources, permission was required to complete the research. Prior to contacting any possible participants, the researcher completed the Institutional Research Board (IRB) Proposal Form. Along with the description of the study, a copy of the interview guide was submitted to demonstrate the questions during the interview process (see Appendix C).

The interview guide was a list of set questions that were necessary to be asked in relation to the research study. These were developed from the research questions guiding the study. The interview questions were grouped by research topics to help guide the researcher through each interview. Several types of questions were asked for each research question in the interview guide to ensure a variety of viewpoints and types of answers. The interview questions guide allowed the researcher to ask questions to help elaborate on previous answers. Because the interview was semi-structured, there was the possibility of the interview to take many directions. The guide was a tool to ensure all the important and necessary questions were asked and to make the interviewer stay focused.

The IRB proposal was accepted and approved to conduct the research study (see Appendix D). The interview question guide was approved by the IRB as well as reviewed by a panel of experts with experience in qualitative research and/or international agriculture to ensure the questions would provide the necessary results for the research questions.

The researcher was an observer as participant because the individual was visible to the participants. The researcher was in contact with the participants and asked them questions pertaining to the research study. This is how Ary, Jacobs, Sorensen, and Walker (2014) described an observer as participant in qualitative researcher.

Sample

Texas Tech University international students who are studying in the College of Agricultural Sciences and Natural Resources (CASNR) were the target sample of

the study. The individuals were chosen based on agricultural background, country of origin, and field of study. A total participant response of nine international students from varying countries was used.

These individuals were chosen through convenience and snowball sampling. They are enrolled in a current agricultural field of study at Texas Tech University and have an agriculture background from a country outside the United States. Because of this, they have the knowledge and experience to participate in the study.

The first participants selected were convenience sampling through personal contacts that met the stipulations set by the researcher for a total of six initial participants. The interviews were completed with this sample and at the conclusion of the interviews, the participants were asked if they knew of anyone who would be useful for the study or interested in participating. From there, the researcher was able to snowball sample to gain three additional participants; this resulting in a total of nine interview participants for the study.

The participants provided consent to be a part of the research study. After this a schedule was made for a day and time of the interview. Further information about the research study and interview process was provided at the beginning of the interview through an information sheet (see Appendix E). The goal was to reach as many individuals who were willing to participate in the study who also meet the criteria as possible.

Data Collection

The chronological order of events for each participant interview was the same. The participants were contacted by researcher to explain the study and request

participation. The individuals scheduled an interview time and date with the researcher and received a reminder about the interview the day before and the day of the interview.

The interviews took place in the same building on the Texas Tech University campus in a small, quiet conference room so there were no promotional or informational signs or posters on the walls to distract the participant or sway their responses. This was also to eliminate noise interference, interruptions during the interview, and provide a neutral environment to the international student participants and researcher. During the interviews, a voice recorder was used. A notepad was also used to write notes about any physical influences of the participant, such as mannerism, emotions, voice inflections, and behaviors.

The interviews were conducted through asking open-ended questions and having a conversation with the individual. According to Ary et al. (2014) generic questions ask about a broad population and realist questions ask about unseen objects such as emotions and beliefs. Both styles of questions were used in the interview. A semi-structured interview style was used as described by Ary et al. (2014) as "the area of interest is chosen and questions are formulated but the interviewer can modify the format or questions during the interview process" (p. 466). This provided a guide for questions to be asked and allowed an open flow of conversation and added questions as the opportunity arose.

To avoid potential bias toward participants and manipulation of the assessment, the interview guide was implemented as a baseline for all interviews with the opportunity to ask additional questions. The guide was a tool to keep the

interviewer focused on the topic and the direction of the conversation within the research parameters. The interview questions were categorized based on topic. Each interview topic was divided into a group with similar responses from each interview. The entire interview was not grouped as a whole, but as individual components based on topics. This was to guide the researcher through the research questions of the study as well as provide an outline for the interview.

The interviewer also observed behaviors and emotions of the interviewee during the study. The participants knew who the researcher was and discussed the study with them. Each interview was conducted in one phase. The process lasted between 20 and 30 minutes for each participant.

All participants' names were excluded from the study and replaced with numbers to ensure additional confidentiality of the study. After the interview, the audio recordings were transcribed and the notes of personal behaviors and actions were aligned with the transcription. The audio files were saved to a password protected computer where they will remain for at least three years, and then will be deleted.

After all the interviews were completed, they were transcribed and sent to each corresponding participant. Each participant only received the transcript of their individual interview. This was to ensure no misinterpretation or miscommunication occurred during the interview. Proper understanding and representation of what the participants wanted to say was critical in the analysis of the study. These documents were uploaded and stored on a password protected computer where they will remain for at least three years. The research participants were assigned pseudonyms for their

responses. Any identifying markers such as country of origin and/or field of study were removed from this study. This is because the College of Agricultural Sciences and Natural Resources would have the ability to identify the participants with this information and lose their confidentiality.

The practice of reaching data saturation by having no new themes was used for this study (Fusch & Ness, 2015). The interview process continued until data saturation and participant saturation were reached. Data saturation, or rich data, can be described as being high quality and thick data being quantity (Fusch and Ness, 2015). This occurs when there is no new data being gained from the research. This same principle was used to ensure participant saturation by continuing to find new participants until no new suggestions were named.

Data Analysis

Open and axial coding was used to categorize the interview responses after they had been transcribed. Creswell (2012) explained open coding as the researcher identifying categories in the interviews or documents by using a constant comparison. Individual responses were analyzed and not the interviews in their entirety. The open coding method identified common themes in answers and aided in sorting the interview responses into categories.

Axial coding is the practice of creating subthemes within each of the categories (Creswell, 2012). The axial coding was used next. Sub themes and categories were developed from the responses to gain a more descriptive look at the responses. Common subthemes were then reported and discussed further. These were then

compared with other themes and subthemes to create a map of the participants' responses and how they answer the research questions.

To aid with the organization and structure of the coding, Nvivo 10 was used by the researcher to sort the interviews into the categories and sub categories that were apparent from the research. Nvivo 10 is a computer application program developed to aid researchers in the coding and organizing of qualitative research. Themes, subthemes, and categories are examples of ways Nvivo 10 can organize the coding process.

The coding of individual interview answers was the only method used to assess the constructs. The researcher was the individual who assessed the constructs and coded the responses. Due to limited resources of time, funding, and personnel, only one coder was available for the research. This method was practiced with a pilot study and refined for this research study.

Trustworthiness

Research Bias

Merriam (2002) explained choosing participants with various experiences, backgrounds, and demographics aids in eliminating bias of the researcher. In order for a research study to be trustworthy, it must first be valid, reliable, and ethical.

The researcher has a background in agriculture and the field of agricultural communications. Although the researcher has traveled internationally, there were no influences from any of the countries discussed in the research. The researcher has had no contact or experience with communications about agriculture in these countries.

Researcher Bias

To bring awareness of the potential bias of the researcher, it is important to understand their bias, values, and background. Creswell (2012) calls this reflexivity and brings awareness to the factors of the researcher that can influence the results of the study.

My background roots itself deeply in agriculture and communications. Agriculture has a strong influence in my family and communications in my career which gives me a positive impression of agricultural communications. I kept an open mind during the interviews to other peoples' perceptions of agriculture, and did not let my reactions or interpretations influence the findings of the research.

International travel and interconnection has played a large role in my background and is something I am interested in. This is the reason I wanted to take a closer look at agricultural communications around the world. This study mixes both aspects of my background and how others understand their connections.

Trustworthiness

Lincoln and Guba (1985) stated trustworthiness is the qualitative version of quantitative reliability and validity to ensure the research and results are credible, and can be measured using credibility, transferability, dependability, and confirmability. Creswell (2012) described trustworthiness of qualitative research being proven similar means of internal validity, external validity, reliability, and ethics.

Credibility, otherwise known as internal validity, is the truthfulness of the study (Ary et al., 2014). This was ensured in the research study through the means of triangulation of multiple sources of information such as literature research and various

interviews, member checks with participants, and peer reviews of the findings and analysis as they are defined by Merriam (2002).

Transferability, the external validity, is the idea that the findings of a research study can be applied to other situations (Merriam, 2002). This is applicable because of descriptive adequacy, or description of the data and how it was collected. "The researcher must strive to provide accurate, detailed, and complete descriptions of the context and participants to assist the reader in determining transferability" (Ary et al. 2014, p. 535).

Dependability or reliability is defined as the ability of the findings be recreated multiple times (Merriam, 2002). To ensure the reliability of a study, an audit trail can be found by reviewing the path of the study. The researcher also used multiple data sources to ensure consistent and dependable results in line with Merriam (2002).

Confirmability, otherwise known as objectivity, is established through reflexivity and audit trials to control and try to eliminate bias. According to Ary et al. (2014), qualitative researchers are more concerned with their data and conclusions being able to be confirmed by others investigating the same situation.

A pilot test of the study was performed to establish the reliability and trustworthiness of the study. Potential threats that could have changed the outcome of the study were identified and eliminated before the research began for this study.

Conclusion

A qualitative case study was used to answer the questions of how agricultural communications is being used, the perceived impact on local communities in a region and globally, and the importance of agricultural communications. Semi-structured

interviews using open-ended questions were used to can information. The participants were found using convenience and snowball sampling. The interviews were coded using the open and axial method with the aid of Nvivo. The elimination of bias and proof of trustworthiness was confirmed through Lincoln and Guba's (1985) confirmability, dependability, transferability, and credibility.

Chapter Four

Findings

Introduction

The purpose of this research study is to address the growing interest in international agricultural communications in foreign countries, identify how it is used, and the impacts it has on countries worldwide. This research study was guided using the following research questions:

1. What methods of communication about agriculture are used in specific countries to producers and to consumers?
2. How are the channels of communications similar by geographical region?
3. What is the perceived importance of agricultural communications locally wtihin a region and globally?
4. What impact does agricultural communications have for the national and international agricultural industry?

Description of Participants

Each participant was given a pseudonym during the transcription of their interviews to comply with confidentiality aspect of the study. They are described below to provide information to the reader about the participants' background and insight to their responses.

John

John is a doctoral student from the eastern part of central Africa. He has worked in the public, government, and education sectors of the agriculture industry.

Susan

Susan is from Central America. She has worked in agriculture in surrounding countries in regional committees and government offices.

Cindy

Cindy's home country is in Central Africa on the west coast. Her previous work has been with the agricultural agencies in her country.

Cate

Cate is from a country in the central part of South America. Her background in agriculture is more recent because she grew up in an urban area. She has since become interested in agriculture and has worked with educational trips in regions surrounding her home country.

Beth

Beth is from Central America. Her background ranges from working in agriculture in her home country to research projects based out of the US. All her work has been targeted toward Central America.

Gayle

Gayle's home country is in the northern region of South America. Her work has been in the agricultural industry of her home country in the public sectors.

Amy

Amy is from a coastal country in the north of South America. She has worked in agriculture for the public and educational industries. Her experience with agriculture ranges from the Caribbean to South America through her research and educational work.

Luke

Luke's country of origin is in the central part of Central America where he worked in the private sector of the agriculture industry.

Brody

Brody's home country is in southeastern part of Europe. Coming from a family who works in the agriculture industry, his perspectives are from the view point of a farmer.

Findings in Relation to Research Question 1

This research question sought to identify what communication methods, if any, are being used to share information about agriculture to consumers and producers in the participants home countries. Three themes appeared in the data analysis with subthemes in relation to Question 1: communication to consumers, communication to producers, and types of messages.

Communication to Consumers

Communication Methods

In most of the cases, there was little-to-no communication for consumers about agriculture. If anything, there were commercials to eat certain foods or promote brands to the urban areas. Amy said there is more communication in Central and South America than in the Caribbean, however, these efforts are not as good as in the US (Interview 7). Susan (Interview 2) said

> Our billboards are commercial, very commercial, Burger King and that type of stuff. We do have some advertisement on TV about 'let your kids drink milk', but those are sponsored by the companies producing milk. So, we don't really have like more awareness stuff (p. 4).

The majority of the cases stated that the communication was limited to the rural producers. This created a divide in the knowledge and information sharing about agriculture. Beth said there is very little communication about agriculture in the urban areas, where the rural areas focus mainly on agriculture, causing them to be removed from the agriculture industry (Interview 5).

> I can tell you from my point of view for example. There's not a lot of advertisements from what I saw. There is not any contact. Yeah, related to agriculture, there is not. That is the problem, because I came from a city so I never had contact with like a lot of agriculture (Cate, Interview 4, p. 2).

The one example of consumer communication about agriculture was rooted in the government. The government and the president stressed the importance of agriculture to all the citizens of Cindy's country in Central Africa. She added

> Everyone knows that the soil is a bank you need to invest in. So, there are jingles and radio programs in local dialects. Because the president, two or three years into her term, when she started she stressed the need to invest in agriculture and the agriculture sector" (Interview 3, p. 1).

Consumers' Perception of Agriculture

Because of this lack of communication to the urban consumers, there is limited understanding about agriculture. Many of the participants mentioned their perception of the consumer understanding of agriculture. Brody said in his country there is a large gap between the urban consumers and knowledge about the agriculture industry (Interview 9).

The common thread that kept appearing in the comments about consumers' perceptions of agriculture was the influence of the US. This included the viewpoints and understanding of agriculture the majority of American's have on the industry. The

opinions, viewpoints, and understandings American's have are influencing other countries around the world. Susan (Interview 2) said

> There are a lot of people in the city that don't know about agriculture and there are a lot of misconceptions, and since we are really, heavily influenced by the US there is a lot of people that are starting to think like a lot of the misconceptions in the US. So if you go to the main cities you have that, and if you go to the rural areas they are more aware. They know more about agriculture (p. 4).

> We are always so influenced by American culture. And, we are always trying to find like, gains in terms of quality of food. So, we try to save the more natural stuff or homemade products. We have that battle with communities (Amy, Interview 7, p. 2).

Communication to Producers

Channels

Mobile phones and text message technologies are being used to contact the remote producers in many regions. This is because the majority of producers own a mobile phone, and they are relatively inexpensive. John (Interview 1) said

> We are moving away from now face-to-face to media communication, mainly through telephone. Mobile phones are in every home, there is a mobile phone. Yeah, if I had to choose, mobile phone, and particularly using the platforms available on the mobile phone system, would be the best to pass on information to farmers (p. 2).

Susan stated that companies in her home country in Central America are starting to send information to farmers through phone messages to eliminate the middle man (Interview 2). Even though there is very little internet, almost every family has a cell phone and this is how they receive some of their information said Gayle (Interview 6). Cindy (Interview 3) added

> Now that we are trying to get youth on board and the youth they use social media a lot. Mostly all the telephone companies [provide] free browsing or

> cheap, very, very cheap affordable. So, I think social media and Facebook pages Twitter and all the social media will be good (p. 3).

Radio was another commonly mentioned form of communication channel. This is used to reach the areas of production that may be inaccessible. John said the rural communities he is familiar with commonly use radio (Interview 1). Susan said radio is the number one method of communication for rural populations in her country (Interview 2). When talking about the radio, Beth said

> Well, I know radio is a big thing in rural areas I know they even have education programs. For people who maybe didn't go to school, they do radio education. Then they send materials to the people, and then they can follow along on the radio (Interview 5, p. 2).

> Rural areas radio is very popular. It gets everywhere. We have a lot of … small shops they target for rural areas where you can find agricultural products. In those places, the private sector puts a lot of effort to inform the farmers there (Luke, Interview 8, p. 2).

Print media is not a popular method of communication for the rural areas. This is because of the inability to travel to deliver the print information and the low literacy rates of many of the rural population. John stated that literacy level is the main reason print media is ineffective because the majority of rural areas have a low literacy rate (Interview 1). Cindy said

> There is print, but how far does it go? It is only for the donors and consumers in the city. Even those in the city, because people hardly read, they are attracted by the pictures. When they see the picture they flip through, and that is it (Interview 3, p. 2).

Cate said there is very little print media about agriculture in her country, and what can be found is typically a pamphlet of information for a company to sell a product (Interview 4).

Face-to-face

People going to the rural production regions of the countries is a popular way of sharing information. This allows the producer to ask questions and gain a better insight to the message being shared. John said he believed the most effective form of communication was face-to-face meetings to allow explanations and back and forth communication with the producers (Interview 1).

> A lot of meetings, because when there is information to be transmitted … you have to get to the head of the community. The face-to-face is the best methods because there you get questions to ask. When doubts are cleared so the face-to-face is the best method (Cindy, Interview 3, p. 2).

> Since they don't have enough resources to totally do all they need to do, they try to get to the farmers. I don't really recall any big marketing campaigns, but mostly they try to get them together in the communities to help them there (Luke, Interview 8, p. 3).

These come in the form of extension agencies, non-governmental organizations, and cooperative employees going out to the regions to communicate with the producers. Groups of producers also come together to discuss different practices and information they have learned. Susan said

> People are now coming together as groups because reaching one farmer is not very easy. But the best approach to reach farmers is through groups. And even among the groups, they talk among themselves. Among even the group members, those have been farming for long, those have been exposed to channels the others. So, even before the technology is coming, the farmers themselves talk among themselves. Those that talk pick up very quickly and also take initiative to show others on how to do the best methods of farming (Interview 2, p. 4).

> A lot of farmers work together, and they have center where they meet or a place where all the production goes. So, there is a lot cooperatives. So, that's something that is really good because they get together and work together and get more benefits than they would individually (Beth, Interview 5, p. 4).

Cindy said most of the agriculture projects in her country use youth to spread messages to explain to their parents about new developments in the agriculture industry such as pests and fertilizers (Interview 3).

Some problems with traveling to the different areas are the road conditions getting to the production areas. Languages can be another problem based on the country or region of the agriculture production. Face-to-face communication is becoming expensive, said John, which is why the rural communicators are moving toward mobile phones (Interview 1). Beth said

> I feel like to win their trust and to really diffuse any innovation is better if we do it face-to-face. But there are some places that are really remote that it's harder to get there. But, probably if they have a farm and they are producing like, it's not going to be that hard to access them (Interview 5, p. 2).

> One thing I want to state is that the agriculture areas are really inaccessible because of bad road conditions. I mean very bad. Some areas when it is the rainy season, the mud can reach you right up to here [mid-section] (Cindy, Interview 3, p. 1).

> Well languages are a barrier, so is culture a barrier. Very, very different so people assume [and] grow as their ancestors did. And it's very difficult to change to help them change some of the actions some of the practices that they have (Cate, Interview 4, p. 4).

Types of Messages

Informational

These messages are different in the type of information. One type of informational communication is to promote agricultural practices that will benefit the future products. These include management as well as conservation practices. John said

> We want to see initiative work, and initiate still on the farm. Not just for food, but they should be able to at least farm where they can get some money to pay and get kids to school and care for other expenses. So the main message is just to commercialize farming. Farming should be business (Interview 1, p. 2).

Another sample of information communication is about market updates and new health and safety concerns, and there are always available. Since information such as weather and economy are always changing, it is important to know the newest information. Market information such as prices and new products are some of the information being shared, as well as how to use and store products like pesticides, said Susan (Interview 2). Cindy said

> Usually when there are crop infestation, pest infestation, like a few years ago we had a caterpillar invasion. Crops and the media was all over the place, but it didn't reach down to the communities. So, people had to go down there and physically spread the message (Interview 3, p. 3).

Amy said there is some marketing information as well as educational messages trying to increase consumers' knowledge (Interview 7).

Commercial

New products are always being created for the agricultural industry. Companies will promote their products to the producers through the communication channels that work the best. "Probably fertilizers or pesticides and things like that will be something I would consider. They promote a lot but it's probably the companies interested in selling their products" (Beth, Interview 5, p. 3).

> We don't receive any [market information], but I think that what they have is more related to they want to sell something. So agrichemics, or seeds or irrigation systems. I think that comes, fertilization, that type of stuff (Cate, Interview 4, p. 3).

Companies and organizations want to inform people of how they are helping the rural areas. This will gain them future projects and more publicity from the rural producers. "On the small scale there is promotional because most of the projects like the funded projects, World Bank funded projects, they stress that when you go to the farm, there should be visibility" (Cindy, Interview 3, p. 5). Gayle said

> They promote the government programs. That is one kind of information that they get. They get information of the special receipts from technical people, a specialist, you know, exactly, or they also get information on opportunities to trade their products (Interview 6, p. 2).

Findings in Relation to Research Question 2

This research question sought to answer whether communication methods are similar based on geographical region. There were four themes apparent as a result of the research participants in relation to this question based on the communication channels: Radio, TV and Internet, ICTs, and Workshops.

Radio

Radio was found to be the best option for Central America. Susan said radio is the best way to reach the rural audiences in her home country (Interview 2). Luke said in the rural areas the radio is the popular communication channel because it can reach everywhere (Interview 8). Beth agreed radio was the most utilized method of communication. She added "I think radio is it will be one of the best ways to reach them" (Interview 5, p. 4)

TV and Internet

Cate said "they use radio more than TV" along with very little written communications in her country of origin because of its ability to reach the rural

populations (Interview 4, p. 5). Amy said the best ways to communication would be TV and radio channels (Interview 7). Gayle said "We have a lack of communications channels, so I think the radio remains the best in this moment" (Interview 6, p. 3). Overall, in South America, radio is used for rural, but TV and Internet is used for the majority of communication and in the urban areas.

ICTs

Central Africa as an ease of access for ICT technologies. John said in his country, the communication mainly relies on extension agents and face-to-face communication, but this is expensive and do address this issue, they have switched to the cheaper mobile phones (Interview 1). Cindy also said in her home country, they are increasing internet use through mobile phones to target the younger generation (Interview 3).

Workshops

Because of the better road and travel conditions in Eastern Europe, workshops and meetings are the preferred communication channel. Brody workshops and face-to-face communication is the most used way to share information (Interview 9). However, he added "usually the workshops are being held in cities and the farmers are not in the cities" so there is the concern of travel to the workshops and meetings (Interview 9 p. 2).

Findings in Relation to Research Question 3

This research question sought to answer how important communications about agriculture is to a region or country. In relation to this objective, two themes were evident in the data: importance of agriculture and the impact of the messages.

Importance of Agriculture

A common statement was how important agriculture is to the region. Many of the regions rely solely on agricultural production for revenue. In some places, producing their own agricultural products is the only way the families are able to have food and sustain themselves.

John said agriculture is extremely important to the society in his country because it is the main source of livelihood, and everyone is involved in agriculture (Interview 1, p. 2). Susan said agricultural is the main industry in her country and therefore supports the country (Interview 2). Cate (Interview 4) said

> In my opinion, it is very important because big part of the population is poor. And most of these people live from agriculture. So I think it is very important because of that, and because a lot of people live from that, and because it brings a lot of income from exportations (p. 2).

> I think it is really important because we have a lot of potential. I know that agriculture it's one of the best ways that we can achieve more development in our countries. We just need to be responsible how we use it and educate farmers more and on technology (Beth, Interview 5, p. 2).

Impact of Messages

Producers

Through the use of agricultural communications, producers are becoming more aware of the industry as a whole. This is improving their ability to have larger crops and profits. John stated that "people are more concerned about how much they spend and how much they get. More than just the farming and the money and everything you know. So, people are making comparison and results coming back to farm" (Interview 1, p. 3).

Targeting the younger generations impacts the older parents. This causes changes in current and future farming and production practices, because there is an influence on both generations. Cindy said

> Even if the parents are not educated, when the kids know a little bit of something, they rely on their kids to explain to them. So, if the social media, if especially Facebook, if we use open pages social media pages for the agriculture sector with a lot of pictures, attractive pictures, that will tell that this is something that we need to invest in (Interview 3, p. 3).

Consumers

Communications that have been used for consumer awareness and information has shown an increase in knowledge. Consumers have the information they needed to be able to make choices and understand the agriculture industry. Susan said an increase in agricultural communications in her country would greatly affect the urban populations who are influenced by the US and have the same misconceptions and misunderstandings about agriculture (Interview 2). "I think it would change how people think about agriculture. People will probably be more understanding of the importance of it" (Susan, Interview 2, p. 6).

Findings in Relation to Research Question 4

The information sought with this research question is the perceived importance of international agricultural communications within individual countries and between multiple countries. Two themes with subthemes were found in the data: impact of agricultural communications and ways to increase agricultural communications.

Impact of Agricultural Communications

Knowledge

Safety in products that are being exported and imported is a concern for everyone. Agricultural communications nationally and internationally can bring more attention and awareness to the issue of food safety and its importance. Susan added

> I think it is very important. For instance we don't have a food safety understanding. If we understand, as consumers, more of that then the industry will understand our concerns, will put more emphasis on working on that, and teaching their employees about that (Interview 2, p. 6).

Amy said

> I say that it [agricultural communications] has an impact because in some cases it is educational. And, in some cases, when it's TV or a newspaper type of thing, they might be communicating to consumers about options they should not take or trying to, for example, educate about their nutritional habits (Interview 7, p. 2).

International agricultural communications has to occur both ways. In order to be effective, communications need to be occur between multiple countries and not just sending out information. This will involve taking an interest in the regions and the culture and traditions in that region. Cate said

> Internationally, I think it is also important that [communications occurs] both directions because I think that it's happening in one place. I think you got the US [who] don't understand a lot of what is happening [in other countries] and vice versa. So, I think culture, it is important to take care when we are communicating about agriculture in this case (Interview 4, p. 3).

> [Producers] need to know what's the importance of food safety for their crops, or for whatever they are producing whether it is an animal product or produce type of thing. So, if you don't communicate with them and explain the regulations they will not know what is going on. And that's in terms of exporting their food stuff to the United States for example (Amy, Interview 7, p. 3).

Awareness

Many regions are producing agricultural products without anyone knowing. This can be changing with a greater emphasis on agriculture internationally. Agricultural communications can increase the awareness and accessibility of production from different regions. Cindy said there are many cases where things are happening in villages and production areas that no one knows about, and they are surprised when they visit because of the lack of visibility about agriculture and projects (Interview 3). Susan said

> I think it is very important that we incorporate agricultural communications. There have been some initiatives and whenever there's been a big problem, there's a rise in the communication, but we shouldn't be reacting. We should be preventing that. It is just like in medicine, we don't want to react to a disease. We just want to prevent it. So we should be ahead of the game and avoid those kinds of things (Interview 2, p. 7).

The consumers' knowledge and understanding of agriculture is limited in different regions around the world. Agricultural communications can help bridge this gap and create a more educated consumer. Cate (Interview 4) said

> I think it [consumers' knowledge] will be change a lot. We will actually understand what is happening and that there is more types of agriculture. So people would understand more and will value more the food that they consume I think (p. 3).

Increase Agricultural Communications

In order for the community to listen or take an interest in the communication, an influential person must be involved. People want to listen to people they know, trust, and respect so it is important to have these influential leaders involved in the agricultural communication message. Gayle said

> You need to find the leader of that community, because a leader is the person who is going to share with them the information. Maybe the people can listen and watch and see. But many times people don't understand how it works, so they need the leader of the community to share the information, and if they have questions, this person can answer every question they have (Interview 6, p. 2).

> I think we need, even if we don't bring the extension service as big as it was again, maybe a strong the projects that in the local communities to improve that communication. Because those are the ones get the farmers and know the farmers and can communicate with them and avoid that stuff with the middle man (Susan, Interview 2, p. 7)

It is important to use the communication channels that work for the audience. For agricultural communications to grow on the international scale, people need to know what works in which areas and what is the most effective to reach the target audience. Cindy said advertisements and social media should be the focus of communication in the future "because of road conditions and other bottle necks it will be hard for an extension or government or somebody to go there all the time" (Interview 3, p. 4). Beth added

> Well I would like, [be]cause I know we all watch TV, to have more like the agriculture part be promoted in on TV. Because, also, we use a lot of you know the billboards things like that are really popular in our countries and people really look at those things and pay attention to them. So, more like awareness or flyers (Interview 5, p. 4).

Luke said in order to increase communications about agriculture, the efforts should be targeted toward the local producers because they do not have the resources or education as much as the urban areas (Interview 8).

The messages need to fit the audiences as well. Consumers and producers do not need the same information being shared to them. To have an impact on these audiences, tailor the messages to the people. Gayle said different agricultural topics

should be promoted and communicated to increase the interests of the small sustainability farmers (Interview 6). Amy (Interview 7) said

> I think that the first step probably will be communicating with them, teaching and investing more time in research and training. And I think, talking probably from my experience or area of expertise, but I think increasing training will certainly improve the communication and you'll lean on learning what they need to how to improve what they are doing (p. 3).

> Well, in urban areas, I think it should be targeted to consumers like to be more aware of their food, where it comes from and also to support more farmers. But in the rural, I would see it more as an education opportunities for farmers and technology (Beth, Interview 5, p. 4).

> I think, the type of communication is important. These are small, small, small communities. The person that goes to them acts like he knows everything, and he has to change, and they are completely wrong, and they are living everything wrong so that's, I think, that's one of the biggest barriers. So, I think they will change if people know how to communicate the message (Cate, Interview 4, p. 4).

Brody said agricultural communications should focus on education and "just educational messages, I mean educate people I which crops are I don't know, better to grow taking into account what kinds of lands you have, what the climate is there and also what the market needs"(Interview 9, p. 3).

Conclusion

This chapter discussed the findings of the research guided by the research questions. The information sought through these questions answered these questions and provided an in-depth look into the communications in four different regions. Chapter Five includes the conclusions and recommendations in relation to these findings.

Chapter Five

Conclusion and Recommendations

Introduction

As introduced in Chapter One, the purpose of this study was to address the growing interest in international agricultural communications, describe agricultural communications in foreign countries, understand how it is used, and the impacts it has on countries worldwide. The following research questions were used to guide this study:

1. What methods of communication about agriculture are used in specific countries to producers and to consumers?
2. How are the channels of communications similar by geographical region?
3. What is the perceived importance of agricultural communications locally within a region and globally?
4. What impact does agricultural communications have for the national and international agricultural industry?

The researcher sought to understand the channels and messages used for agricultural communications in different regions around the world. A case study methodology was used for this research to focus on a single aspect in the case to create a more in depth analysis (Merriam, 2002). The following conclusions were made from the findings in Chapter Four gained from the interview research and the information found from the literature review in Chapter Two.

Agricultural Communicators as Change Agents

Rogers (2003) describes change agents as the individuals who transfer information and knowledge from the sources to the audiences by creating a bridge channel for the message to be shared through. These people are important to the diffusion of innovations because they have an understanding of the technical side of the innovation and the ability to communicate and spread messages to groups in remote areas. Agricultural extension agents, communicators, and educators are examples of change agents because they communicate, transfer information, and share knowledge between the government or private institutions and organizations and the rural producers or urban consumers in a way that both ends understand the message clearly.

Change agents have discovered targeting messages toward the influential people of the various communities result in the more effective diffusion of innovations (Oleas et al., 2010). These can be the elders of the community or even the younger generations who are beginning to participate in agriculture and understand the changing technologies within the industry. This is the goal of the 4-H program. Through the partnership of Cooperative Extension and land-grant universities in the US, young people are able to learn, develop, and experience various aspects of the industry through hands-on training ("4-H Youth Development & Mentoring Programs", 2016). 4-H programs have increased to a global scale to meet the growing demands of the growing population and provide the change agent communication link between the sources of innovations and the different audiences (4-H Around the World, 2016).

Other programs such as AgriCorps have taken the ideas of 4-H and change agents and implemented them on the global scale. AgriCorps is partnered with the Peace Corps and focuses on the agricultural sector in the countries of Ghana and Ethiopia by connecting American volunteers with youth in rural areas to increase school-based agricultural education (AgriCorps, 2016). They focus on youth because they are the early adopters of innovations and technology and fill the role of influential leader to their families and communities (AgriCorps, 2016).

The change agent is in charge of creating the opportunity for individuals to adopt and implement an innovation (Oleas et al., 2010). This is how innovations are diffused to rural, remote, or LDC areas. In order to increase the communication about agriculture to grow the economy of the community, it is important to understand the communication channels and methods that are effective and how best to share the information.

Conclusions in Relation to Research Question 1

The researcher identified three themes in relation to the methods of communication about agriculture in different countries and regions. The themes found related to Research Question 1 were communication to consumers, communication to producers, and the types of messages.

Communication to Consumers

Parikh et al. (2007) stated consumers in developing countries are beginning to take an interest about their food and are increasing their knowledge. Extension agencies are helping consumers, producers, and agriculturalists expand their understanding from just the local community to include a more global view (Parikh et

al., 2007). This is where the change agents have had an impact on improving the awareness of new agricultural innovations or ideas. In Cindy's country in Central Africa, the president became involved in the agriculture industry and stressed the importance of it on the society and the need to invest in agriculture. (Interview 3). Politicians increasing awareness of agriculture is the most direct way to reach audiences.

Agriculture and food availability has been critical in developing, maintaining, and growing civilizations (Godfray et al., 2010). The increase in agricultural globalization has created the ability for countries to have food and reach their market potential (Ufkes, 1993). Amy said her country in South America is heavily influenced by America and they try to increase the quality and nutrients of food by focusing on homemade products (Interview 7). By focusing on the impacts of food, countries are able to increase their benefits and grow their market potential.

The importance of knowledge and understanding for agriculture is for everyone, and not just the people in the agriculture industry (Cox, 2002). This includes targeting consumers to increase their knowledge about agricultural communications as well. Change agents need to identify the audience that has a need such as more knowledge about agriculture and assist them in becoming aware of this need (Rogers, 2003). Susan said this is evident in her home country in Central America because of the misconceptions consumers have about agriculture are similar to the ones Americans have about agriculture and the industry. (Interview 2). If change agents can identify the target audiences in consumers, they can begin to change this misconceptions to create new ideas about agriculture.

Communication to Producers

There have been studies showing the positive impact of ICTs when they are used in the agricultural industry (De Silva & Ratnadiwakara, 2008). Internet based communication has also seen growth in rural areas of various countries creating easier access to information (Parikh et al., 2007).

John said mobile phones are in every home in his country of origin in Africa, and because of this, people are relying more on the mobile phones and the apps on phones to share information to producers (Interview 1). Susan said the same of her country in Central America and the use of mobile phones by using text messaging services to transfer information without having to use an expensive middle man (Interview 2).

Farm Radio International has been a leader in providing radio access to remote areas of developing countries around the world (Farm Radio International, 2016). This is a popular method of communication because it removes the barriers such as geography, literacy, and education (Parikh, et al., 2007).

Beth said radio is popular in her country especially for educational programs to increase knowledge on more than just agriculture (Interview 5). Luke said the radio is popular in his home country with the private sector targeting rural areas (Interview 8).

The transfer of information and knowledge is also popular in face-to-face contact situations (Nigh, 1997). These can be extension agencies, non-governmental organizations, government departments, or the private sector of the agriculture industry. Rogers (2003) explained public demonstrations are excellent ways for

change agents to reach innovators and early adopters to spread information about a new innovation, practice, or idea.

Cindy said in her country it is best to target communication to the leader of the community because they can provide face-to-face communication with the local people and answers their questions (Interview 3).

However, there are problems with relying on face-to-face communication in rural areas. Leeuwis (2004) and Aker (2008) bring awareness to the difficult travel conditions of many countries as well as the communication and knowledge barriers to understand the message. Face-to-face communication is becoming expensive, said John, which is why the rural communicators are moving toward mobile phones (Interview 1).

To win trust and diffuse an innovation, face-to-face communication is required, but because of remote areas and difficult travel areas, this type of communications is not always available said Beth (Interview 5). Cate said languages and cultural differences also create barriers that make it difficult to share information and transfer messages (Interview 4).

Types of Messages

Communication between producers is an important method of knowledge sharing because this is how they learn about what works and what does not when it comes to technology, practices, and management Parikh et al., 2007). This is where the change agent begins the exchange of information and diagnoses problems that can be fixed by implementing an innovation (Rogers, 2003).

John said the main message of the communication about agriculture in his country is to increase the farm from just subsistence farming to a more commercial farming in order to create a business that will provide an income (Interview 1).

End-to-end communication is used to share constantly changing information such as markets or new technologies (Parikh et al., 2007). However, this practice is not always executed to its best potential. This creates the need for the change agent to be the communication link between the two ends. Communication about agriculture increases when there is a crisis such as a pest infestation, but even with this increase in communication, the producers are still not receiving messages or information efficiently (Interview 3).

Third party communications, or change agents, are available but not used because of the challenges in communication with the rural populations including language and social culture (Parikh et al., 2007). This is where a change agent having the ability to have one foot in the corporate world and one the production world so they can communicate with and understand both sides (Rogers, 2003).

Gayle said the communication in her country is trying to promote the government programs, share information from specialists, and provide a platform for people to trade their products (Interview 6).

Conclusions in Relation to Research Question 2

This research question sought to answer whether communication methods are similar based on geographical region. There were four themes identified as a result of the research participants based on the communication channels: Radio, TV and Internet, ICTs, and Workshops.

Radio

The countries represented in this study that are in the Central American region have radio as the main communication method to the rural areas. This is because of the ease of access to the radio that face-to-face communication cannot always reach (Interview 5). Radio is the best way to communicate with producers in the remote areas to eliminate barriers (Parikh et al., 2007).

TV and Internet

In the South American region that was represented from the participants, radio is the main method of communication with the rural producers. In urban areas, there is the use of TV and Internet, but these channels do not reach the agricultural areas (Interview 4). Internet access and adoption is growing rapidly around the world especially in the urban areas (Goldstruck, 2012).

ICTs

It is common to see mobile phones and other ICTs in the African regions represented in this research study. The phones may not all have the ability to access the Internet, but can use them for sharing information through messaging systems (Interview 1). Text messages and other similar technology are being utilized through the mobile phones. Mobile phone access was over 50% in 2009 and offered opportunities for producers to share knowledge through private and public channels (Aker, 2011).

Workshops

Travel conditions and access is easier for countries in this region creating the ability to have meetings and workshops to share information. This eliminates the

difficulties explained by McCole (2014) including transportation, road access, and cost of travel. Brody said there is TV and radio for agricultural communications, but the workshops are preferred (Interview 9). The ISMAM transfers information in the form of meetings and workshops that occur monthly and annually (Nigh, 1997).

Conclusions in Relation to Research Question 3

The researcher wanted to identify the importance of agricultural communications locally within countries and in the global industry of agriculture. The two themes found from the interviews were the importance of agriculture and the impact of the messages.

Importance of Agriculture

The globalization of agriculture has increased the amount of agricultural products traded globally (Hazell & Wood, 2008). This has increased the economic wealth and industrialization of many LDCs around the world (Coclanis, 2003). Beth confirmed this when she said agricultural communication is important because of the potential countries have, and agriculture is the way to achieve that potential by being responsible and educating producers about new technology advances for the industry and consumers about what the agriculture industry is and what it does (Interview 5).

Impact of Messages

The messages being shared are having an impact on LDC and DCs alike. Because of the increase in globalization in the agriculture sector, new trends are appearing such as the perceptions of women in the work force and their ability to own land (Bee, 2000). Change agents diffusing new innovation, like ideas, ways of thinking, or practices is part of creating an intention to change (Rogers, 2003).

John stated that "people are more concerned about how much they spend and how much they get. More than just the farming and the money and everything you know. So, people are making comparison and results coming back to farm" (Interview 1, p. 3).

The communication links between communities and regions have positive effects such as raising awareness about agricultural industry options for consumers, such as food choices, and increases in profit for producers (Nigh, 1997). Susan said an increase in agricultural communications in her country would greatly affect the urban populations who are influenced by the US and have the same misconceptions and misunderstandings about agriculture (Interview 2). "I think it would change how people think about agriculture. People will probably be more understanding of the importance of it" (Susan, Interview 2, p. 6).

Conclusions in Relation to Research Question 4

The researcher sought to understand what the perceived importance of international agricultural communications for individual countries and between multiple countries. Two themes were found in the data collected through interviews: impact of agricultural communications and ways to increase agricultural communications.

Impact of Agricultural Communications

Parikh et al. (2007) explained that as the effectiveness and accessibility to information increases between producers and consumers, a better knowledge and global society can grow. Rogers (2003) stated change agents have the role of diffusing new innovations to communities, regions, and countries as it is needed. Beth said she

believed it would be beneficial for everyone if there were an increase in education and access to technology because this would allow people to be more aware of opportunities in the industry (Interview 5).

Increased food exports are a result of the lowered trade barriers from the Uruguay Round of General Agreement on Tariffs and Trade (GATT) in the 1980s (Phillips, 2006), and in 1995, the development of the World Trade Organization (WTO). Because of these and newer trade associations and deals, Susan said agricultural communications are important because of the need to transfer information between countries and between ends of the industry. With communication, people will begin to realize the importance of agriculture and food safety and require more emphasis on incorporating that into the industry (Interview 2).

The effectiveness of the message depends on the method of the communication. The channel and message that best fit the audience is important to them receiving and understanding the message (Rhoades & Aue, 2010). Cate said that for agricultural communications to be affective internationally, it needs to occur both directions and not one way from a single country. This includes having an understanding of the country and the culture within that country when planning to communicate about agriculture (Interview 4).

To understand how agricultural practices are changing because of globalization, the focus needs to be on how producers are engaging in new technology and communication products (Phillips, 2006). Cindy said there are many cases where things are happening in villages and production areas that no one knows about, and

they are surprised when they visit because of the lack of visibility about agriculture and projects (Interview 3).

Susan said the incorporation of agricultural communications is important at all times and not only when there is a problem. Communicators and agriculturalists should not be reacting to crises in the industry but preparing and preventing these by using communications (Interview 2).

Increase Agricultural Communications

In order for the community to listen or take an interest in the communication, an influential person must be involved. As stated by Rogers (2003), people are more willing to listen to people they know, trust, and respect, so it is important to have these influential leaders involved in the agricultural communication message.

Gayle said it is important to find the leader of the community to share information because they are the person the people will watch, listen, and understand more than a foreign person (Interview 6). Susan said leaders of local communities are the ones who understand the farmers and can communicate with them more effectively and efficiently (Interview 2).

As Rhoades and Aue (2010) stated, agricultural communications needs to focus on the best method for each region because what works in one area may not work in a different one. Cindy said advertisements and social media should be the focus of communication in the future "because of road conditions and other bottle necks it will be hard for an extension or government or somebody to go there all the time" (Interview 3, p. 4). Luke said in order to increase communications about agriculture, the efforts should be targeted toward the local producers because they do

not have the resources or education as much as the urban areas (Interview 8).

One of the roles of a change agent is the having the ability to understand the audience of the producer to better know how to meet their needs (Rogers, 2002). Brody said agricultural communications should focus on education and "I mean educate people which crops are, I don't know, better to grow taking into account what kinds of lands you have, what the climate is there and also what the market needs" (Interview 9, p. 3).

Cate said the type of communication is important to know when dealing with international agricultural communication because cultural understanding is one of the biggest barriers. Someone cannot go into a community and tell the local producers everything they have been doing up to this point is wrong and they must change, but people will change their practices if the message is communicated effectively (Interview 4).

Discussion

The participants of this research study all seemed to agree on the importance of communication in the agricultural industry. However, they ranged in impact of the communications. Susan, Beth, and Amy from Central and South America focused in the food safety aspect of agriculture. This included how the increase of agricultural communications would have positive results in respect for food safety locally in their own countries and globally through trade. The impacts of international agricultural communications and the safety of traded goods is more than a local issue, but should be a global and worldwide issue.

The individuals working in the private sector of agriculture, such as Luke and Brody, emphasized the need for more than just an increase in international agricultural communications but also more education and training for the rural areas. Gayle and Cindy who have worked in the government departments of agriculture stressed the importance for agricultural communication to grow in new technology formats. Social media, radio, and other ICTs are growing in availability and should be utilized.

John has previously worked in several aspects of the agriculture industry including private, public and educational. He focused on the type of messages that should be communicated and the best ways to share that information for producers. Cate, growing up in the urban areas of her country, described the need for more communications toward consumers and the best way to reach consumers with the messages.

This research study identified the popular communication methods currently being used in various regions around the world, and found trends of where communication is going in the future. Once the channels are identified, communicators can focus on spreading the message audiences need to hear. These can include information for producers and knowledge for consumers so they have a better understanding of the agriculture industry.

The findings proved there are positive trends about the impact agricultural communications has on a community. The local aspect of agricultural communications is important in other countries as well as the impact of agricultural communications on the global scale. This information is required to understand international agricultural communications.

Instructors and faculty in colleges of agriculture around the world should highlight the impacts and importance of agricultural communications on the international scale. Employers of agricultural companies are expecting students to have a global agricultural understanding. This includes knowing the communication channels and messages effective in different regions around the world.

Recommendations

For change agents

The researcher recommends becoming more aware of the effective channels of communication for the rural and urban areas separately. Not one message or one channel will work for both. In many of the developing countries, face-to-face communication from a community leader or influential person is preferred. This is because of their traditions and cultures, and it is important to identify these individuals and work closely with them to gain the audiences trust and respect. This study did not focus on communicating agriculture to the consumer other than to establish if there is any. However, it was evident in the interviews the need and importance of agricultural information for consumers.

It is important for change agents to be able to correctly communicate with their audiences whether they are consumers or producers. The steps to develop, grow, and maintain a connection with the audience is the same for both ends of the agriculture industry, just the messages and the way they are communicated will change. The following steps are required to ensure good communication with change agents and audiences in production and consumer audiences:

1. Identify the community leaders or innovators to begin establishing a relationship. This makes it easier for the adopters and laggards to trust the message and the source.
2. Raise awareness of a need that should be addressed. This can be showing them something that is wrong or could be improved upon.
3. Communicate information about the new innovation that will address the problem or increase the potential of a product.
4. Create an intent to change in the audience. This will occur when the audience has decided that something must be done about the problem and chooses to try the innovation
5. Ensure adoption of the innovation will happen if the innovation meets the desired results the audience was promised. From this information, the audience will go and spread their new knowledge and information with other.

For agricultural communications program faculty

The researcher recommends for agricultural communications programs to increase their interest in the international scope of the industry. Because of the growing globalization occurring in the agriculture industry, communicators who understand the industry are going to be continually required for more international positions in the work field.

Instructors should not become solely reliant on the communication technologies required in the US. Skills in radio, simple messaging, and face-to-face communications are still the main methods of communication in many regions around

the world. Internet is growing in availability, but is not as reliant or as accessible to all countries, and therefore cannot be the only source of information sharing. Because of access to print material and the ability to read print material, simple messaging is required to transfer information using infographics or images.

Many of the communications methods and channels currently taught in agricultural communications programs can be adapted to fit the technology and literacy needs of LDCs around the world. The instructors of these courses could focus on a specific region to have a DC and LDC portion of the course. The researcher identified many different communication technologies in various geographical regions, and it would be difficult to try to educate how to address these as well as the information required for the program in a single course.

For future research

This study goes along with many other studies that have identified the changing technologies being used in many countries. The findings from this study will be implemented into classrooms to prepare the students for work in the global agriculture society. This study sought to provide information that will benefit students in their communication positions in the agriculture industry and how to communicate about agriculture in different countries.

This research study focused on identifying the communication methods and channels to apply these findings into agricultural communications degree programs. This study did not go into depth about the types of messages required for consumers and producers to create the largest change. Future studies should be done on the process of implementing new communication methods and the different messages and

information that should be shared. Researchers should highlight the impact agricultural communications have in other countries on their local level and the global level. The importance of agricultural communications is a factor as well. Just because the communications has an impact, is it considered important is a question that should be addressed.

More in-depth research can be done on a single region or country to identify more clearly the best communication practices and messages to share information with consumers and producers. This research was limited to only a few regions, and future studies can apply this research to the unexplored areas in the world. Future research could be conducted within the different regions. This would allow the researchers to gain a hands-on first look at the communication being used and how it impacts and is important to the countries in the region.

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Appendix A

Developed Countries Listing

Australia
Austria
Belgium
Bulgaria
Canada
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Ireland
Italy
Japan
Latvia
Lithuania
Luxembourg
Malta
New Zealand
Netherlands
Norway
Poland
Portugal
Romania
Slovakia
Slovenia
Spain
Sweden
Switzerland
United Kingdom
United States

Appendix B

Least Developed Countries Listing

Afghanistan
Angola
Bangladesh
Benin
Bhutan
Burkina Faso
Burundi
Cambodia
Central African Republic
Chad
Comoros
Democratic Republic of the Congo
Djibouti
Equatorial Guinea
Eritera
Ethiopia
Gambia
Guinea
Guinea-Bissau
Haiti
Kiribati
Lao People's Democratic Republic
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mozambique
Myanmar
Nepal
Niger
Rwanda
Samoa
Sao Tome and Principe
Senegal
Sierra Leone
Solomon Islands
Somalia
South Sudan
Sudan
Timor Leste
Togo
Tuvalu
Uganda
United Republic of Tanzania
Vanuatu
Yemen
Zambia

Appendix C

Interview Questions Guide

1. What is your country of origin?
2. How long have you been in the United States?
3. What is your understanding of agriculture?
4. What types of agriculture are popular in your country?
5. What types of agriculture production options are available?
    a. Organic/non organic
    b. GMO Methods
    c. Irrigation/water management
    d. Soil management
    e. Mechanization
    f. Technology
6. How would you explain the process of agriculture from producer to consumer?
7. How important is agriculture to society in your country in your opinion?
8. In your country of origin, is there communication about agriculture to consumers?
    a. Publications
    b. Radio
    c. Television
    d. Producer groups
    e. Company to producer
9. What forms of agricultural communications are used in your country?
    a. Public relations
    b. Advertising
    c. Print: newspaper/trade magazine
    d. Radio
    e. Television
    f. Sales
10. What is the main method of communication about agriculture?
    a. What other methods are used?
    b. What would be the best method for your country?
11. What is the type of content in the agricultural messages?
12. How do these messages impact your knowledge and purchases of food as a consumer?
13. What would be the best method of agricultural communications for your country of origin?
14. What impact does agricultural communications have on your country of origin and globally in your opinion?
15. How do farmers gain information?

16. What forms of communication occur between producers?
    a. Between consumers?
17. Is there any form of an Extension program for producers and consumers?
18. Are their producer or consumer meetings to share information?
    a. Language barriers/translations
    b. Travel
19. What suggestions would you make to increase communication and the transfer of information?
20. Is there anything else about agriculture in your country of origin or about the communications used for agriculture?

Appendix D

IRB Approval Letter

TEXAS TECH UNIVERSITY
Vice President *for* Research

January 28, 2016

Dr. Erica Irlbeck
Ag Ed & Communications
Mail Stop: 2131

Regarding: 505563 A Global View of Agricultural Communications: An International Culture Through Communications

Dr. Erica Irlbeck:

The Texas Tech University Protection of Human Subjects Committee approved your claim for an exemption for the protocol referenced above on January 28, 2016.

Exempt research is not subject to continuing review. However, any modifications that (a) change the research in a substantial way, (b) might change the basis for exemption, or (c) might introduce any additional risk to subjects must be reported to the Human Research Protection Program (HRPP) before they are implemented.

To report such changes, you must send a new claim for exemption or a proposal for expedited or full board review to the HRPP. Extension of exempt status for exempt protocols that have not changed is automatic.

The HRPP staff will send annual reminders that ask you to update the status of your research protocol. Once you have completed your research, you must inform the HRPP office by responding to the annual reminder so that the protocol file can be closed.

Sincerely,

Kelly C. Cukrowicz, Ph.D.
Chair, Institutional Review Board for the
Protection of Human Subjects
Associate Professor, Dept. of Psychological Sciences

Box 41075 | Lubbock, Texas 79409-1075 | T 806.742.3905 | F 806.742.3947 | www.vpr.ttu.edu

Appendix E

Participant Information Sheet

A researcher from Texas Tech University is collecting data through interviews of international agricultural graduate students. This data will allow the researcher to create a global view of how agricultural communications works around the world. The total time of the interview process will be 20 - 30 minutes. This is a voluntary study so participation is your choice. Questions can be skipped if necessary based on your judgement.

During the interview, the researcher will record the audio of the interview along with taking notes of movement and behaviors during the interview. These will include summarized comments, body language, changes in attitude and voice, behaviors, and any other significant notations. The researcher will ask questions from an interview guide list, but may ask additional questions of clarification and examples.

At the end of the interview, all documents with identifying information will be placed on a password protected computer and no names will be used in any publishing of the data. No physical, emotional or economical risks to the participants is foreseen. There are no benefits to participating in the research.

For questions about your rights as a research participant or about any physical injuries caused by the research, contact the Texas Tech University Institutional Review Board for the Protection of Human Subjects, Office of Research Services, Texas Tech University, Lubbock, TX 79409. You can call the office at (806) 742-3884.

Dr. Erica Irlbeck is the Primary Investigator of this research and can answer any further questions you may have about this study. Her email address is erica.irlbeck@ttu.edu, and her phone number is (806) 752-2816. Danielle Neaves is the researcher and can be contacted by email, danielle.stewart@ttu.edu, or phone at (319) 759-4695.