

UNIVERSITY OF GHANA



THE ROLE OF RADIO IN AGRICULTURAL DEVELOPMENT IN EJURA-

SEKYEDUMASE, GHANA

BY

VITUS AWETUA JUAYIRE

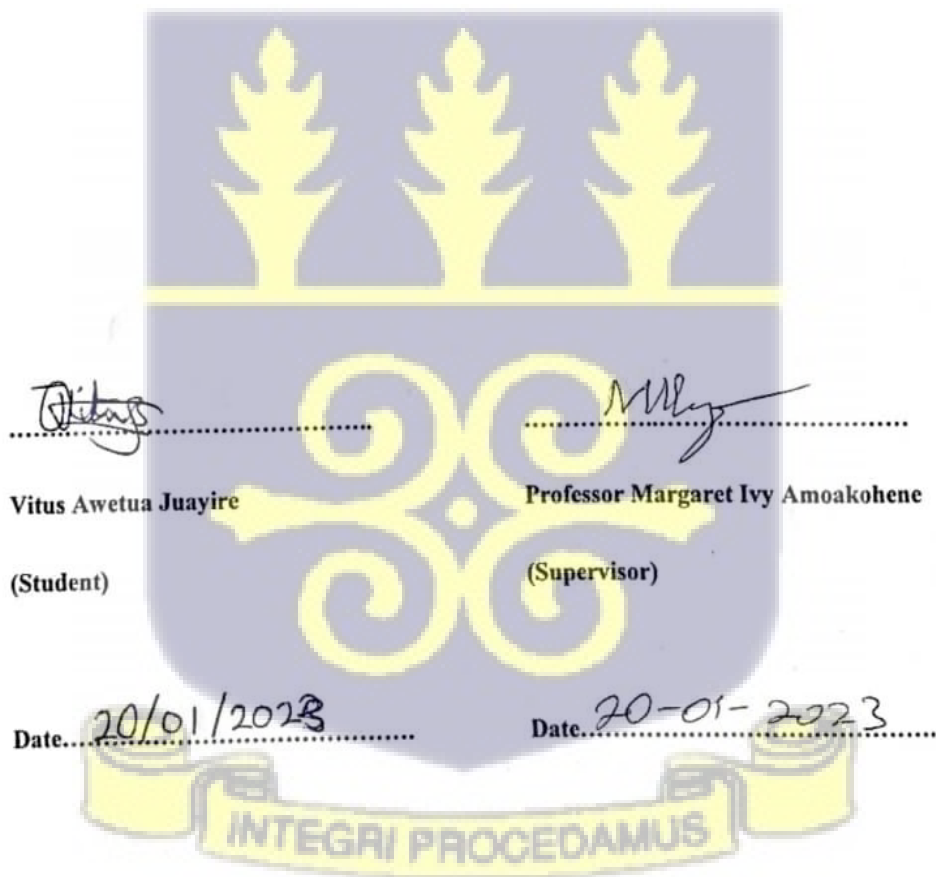
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**THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA,
LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD
OF MA IN COMMUNICATION STUDIES DEGREE**

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DECLARATION

I, Vitus Awetua Juayire, declare that, except for duly acknowledged work by others, this dissertation is the result of my research conducted at the Department of Communication Studies, University of Ghana, Legon, under the supervision of Professor Margaret Ivy Amoakohene.



DEDICATION

I dedicate this dissertation to my family for being so instrumental in my life. I also dedicate this study to all vandals worldwide.



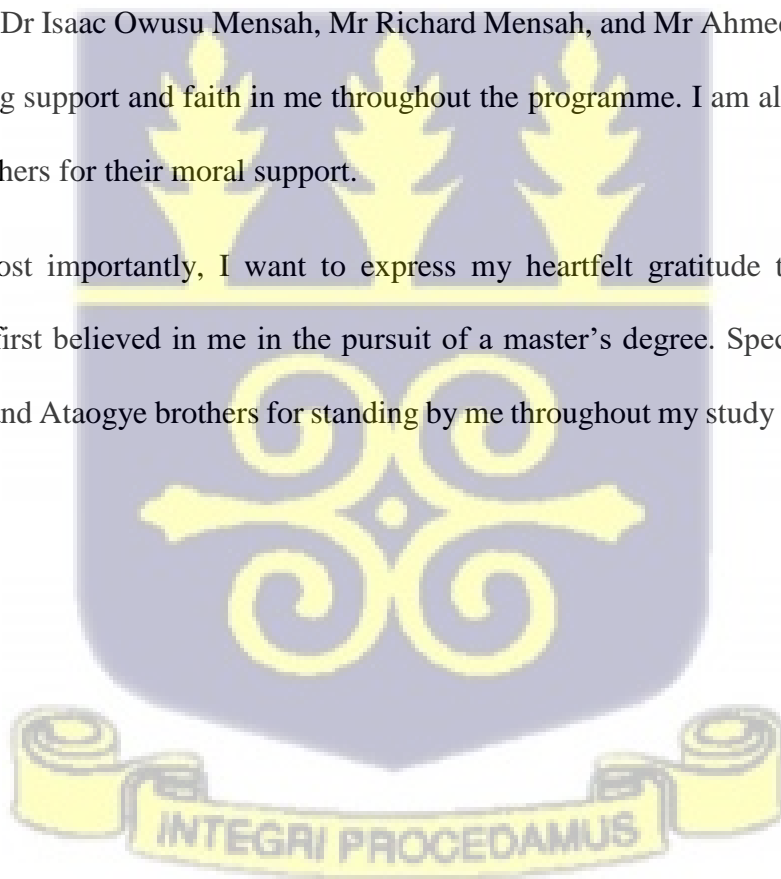
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ABSTRACT

One of the social institutions that intervene in and help the development of communities, societies and nations is the media. Farmers' adoption of new technology that boosts the productivity of agricultural practices depends heavily on the availability of farming information to agrarians. Radio is an important tool for providing farmers with relevant and timely information. The study sought to investigate how radio can help Ghana's Ejura-Sekyedumase region promote agricultural development. The theoretical foundation for this study was the diffusion of innovation theory. The study employed the mixed-method approach to collect primary data from Ejura-Sekyedumase. Questionnaires were administered to 100 farmers to collect quantitative information for the research. Semi-structured interviews were used to gather qualitative information. The study showed that farmers most frequently used radio and fellow farmers as sources of agricultural information. The study also revealed that convenience and accessibility were the most important factors influencing their choice of agricultural information sources. The study discovered that farmers in Ejura-Sekyedumase preferred to hear about agrochemicals and farm product market prices. The study also found that radio contributed to development by providing farmers with relevant information that met their information needs for increased productivity. The findings further indicated that broadcast programmes enlightened and assisted farmers in generating wealth. The study also revealed that power outages, unfavourable time allocation for agricultural programs on radio and poor radio signals were the most significant challenges farmers faced when using radio to access agricultural information.

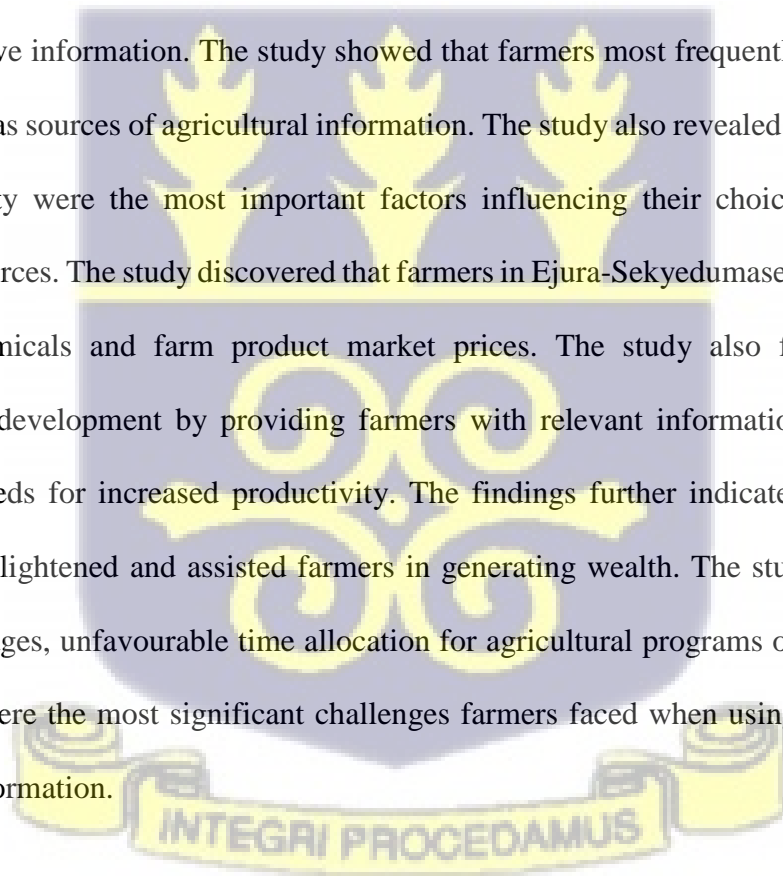
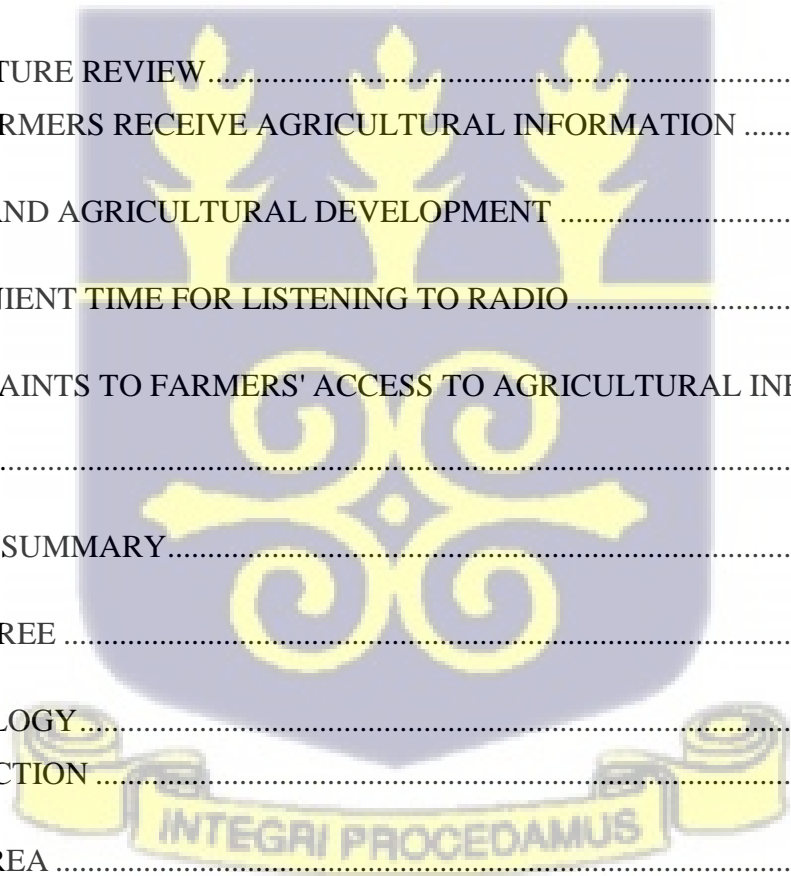


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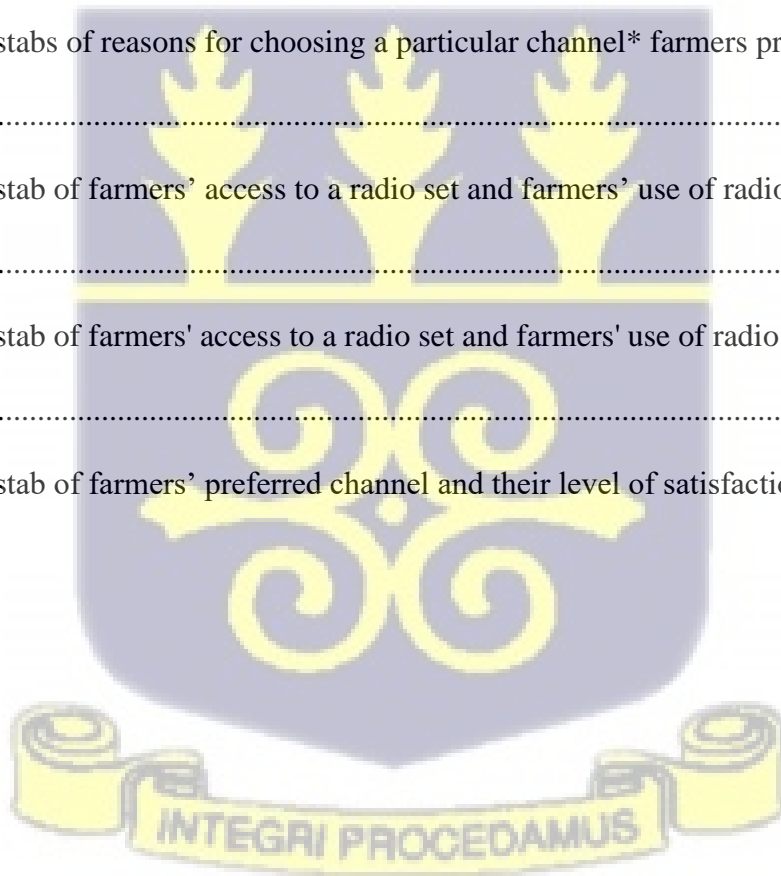
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CHAPTER ONE

1.0 INTRODUCTION

Radio began in Africa in the late 1920s as a colonial project to connect Europeans to their home countries and provide them with world news, current events and the opportunity to listen to familiar music and cultural programming in European languages (Smith, 2021). According to Myers (2008), radio is "the dominant mass medium in Africa, with a wide-ranging geographical reach and the highest audiences compared with television (TV), newspapers and other information and communication technologies (ICTs)." (p.1). Therefore, radio is an important tool for information dissemination and access, particularly for hard-to-reach rural audiences.

Agriculture is a key source of food and one of the oldest forms of employment in the world. According to a World Bank report of 2018, agriculture is one of the main pillars of economic growth that contributed 4% of global gross domestic product (GDP) and 25% to the GDP of developing countries. Okine & Ozel (2018) posited that agriculture contributes to economic growth, provides employment opportunities for the workforce, generates export revenue and eliminates poverty in the economy. According to the World Bank report of 2022, agricultural development is "one of the most powerful tools to end extreme poverty, boost shared prosperity, and feed a projected 97 billion people by 2050" (p.1). However, the agricultural sector worldwide is encountering many issues relating to crop productivity due to the lack of communication between extension workers and farmers (Khan et al., 2020). Amir, Peter and Muluken (2016) added that farmers need information on weather forecasts, inputs, improved cultivation practices, pest and disease management and market prices. In the same vein, Ogbonna and Agwu (2013) stated that agricultural information is central to promoting development in the modern world. Antecedent studies such as Khan et al. (2020) and Ogbonna

and Agwu (2013) indicated that information is key to attaining global development, especially in agriculture. Other studies such as Gadzekpo (2007), Myers (2008) and Smith (2021) concluded that radio is a popular mass medium capable of spreading information to hard-to-reach people, reinforcing the significance of this study.

1.1 BACKGROUND

Okine and Ozel (2018) noted that agriculture makes a significant contribution to Ghana's economic development. In 2016, agriculture contributed 21.48% of the country's GDP. Unfortunately, Ghana's agricultural contribution to the total GDP fell to 18.24% in 2020 (World Bank, 2020). According to Lamptey et al. (2016), the decline in agricultural contribution to Ghana's GDP was due to a number of major issues, including outdated or ineffective farming methods resulting from a lack of agricultural information, rural-urban migration, illegal and small-scale mining (commonly known in Ghana as "galamsey"), insufficient transportation networks and so on. More importantly, with the ever-growing population, which indicates more mouths to feed and more raw materials for industry and export, agricultural production must be revamped and boosted in order to meet its growing demand and contribute more to the country's total GDP in the years ahead.

De Laiglesia (2006, p.10) defined agricultural development as "the process that creates the conditions for the fulfilment of agricultural potential." These conditions include the accumulation of knowledge, the accessibility of technology, the distribution of inputs and outputs and others. Nwachukwu (2008) noted a thin line between agricultural development and rural development. Nwachukwu asserts that agricultural development is multifaceted and fosters positive transformations in rural and urban areas.

Abubakar et al. (2009) emphasized that effective communication is central to attaining agricultural development. Their study on the role of mass media in disseminating agricultural information to farmers in Birni Kebbi Local Government Area of Kebbi State indicated a significant relationship between farmers' sources of agricultural information (especially radio and television) and the relevance of information received in solving agricultural problems. Nakasone et al. (2014) explained that the agricultural industry is dominated by small-scale farmers who lack access to physical infrastructure, market knowledge and agricultural information on new technology and improved farming techniques. Agricultural extension agents are the means often utilized to convey agricultural information to farmers in order to improve their agricultural yields.

The advancement of technology in the twenty-first century makes our daily lives saturated in words, audio sounds, videos and photos that can be accessed via mobile phones, television, radio, laptops, newspapers and other devices. Croteau and Hoynes (2019) compare the existence of media to the air we breathe, something that is always there but rarely considered. Therefore, the role of the mass media in disseminating information to enable rural farmers make informed choices about their agricultural systems is critical to agricultural development, particularly in developing nations (Lwoga, 2010, as cited in Ariyo et al., 2013).

The most favoured mass media channels used by farmers to receive agricultural information are radio and television (Ango et al., 2012). Radio as an example of mass media can be considered one of the cheapest, most convenient and fastest communication channels that is most effective in reaching many people. According to the first annual farm radio symposium report published by the Department of Agriculture Extension Service under Malawi's Ministry of Agriculture and Food Security (2010), radio allows rural impoverished people to be reached at a minimal cost. Radio is still the most widely distributed and listened-to mass medium in Ghana (Gadzekpo, 2007; NCA, 2020), which is why this study focuses on the use of radio as

a channel for agricultural development in Ejura-Sekyedumase. This study examines the role of radio in promoting agricultural development through communicating agricultural information to farmers in Ejura-Sekyedumase. Ejura-Sekyedumase was chosen for this study because it is regarded as Ghana's leading centre for maize and cowpea production (Ansah et al., 2014).

1.2 PROBLEM STATEMENT

The current global hunger and malnutrition crisis is enormous. According to a report by the World Food Programme (WFP) (2023), more than 345 million people in 79 countries where it operates will face high levels of food insecurity in 2023, more than double the number under COVID-19 influence in 2020. Similarly, the World Bank report (2023) predicts a food crisis for over 42 million people in West Africa from June to August 2023. Therefore, it is imperative to conduct a study to investigate ways of enhancing agricultural production of food to cater for the ever-growing food insecurity in the world. Recent studies have identified technology as a crucial tool for maximizing agricultural production. However, in developing countries, limited access to technology remains a challenge.

According to Olaleye et al. (2009), the main problem confronting developing countries is not only a deficiency of technologies and scientific discoveries required for economic growth and rural development but also their transformation into production achievements and use as a tool for economic growth and social change. However, technology has advanced rapidly in developing countries in recent years. For example, Ango et al. (2012) found that most farmers in Sokoto state, Nigeria, have access to television and radio. Similarly, Gadzekpo (2007) and NCA (2020) stated that radio is the widely distributed and listened-to mass medium in Ghana. For some time now, agricultural research studies emphasized ways to enhance the quality of agricultural products and many of these studies focused on the dissemination of agricultural information from the agricultural research laboratories to farmers (Jain et al., 2015). Therefore,

access to information from the extension service, research, and education, among other means is very important. According to Jain et al. (2015), communication tools have provided an opportunity to spread agricultural-related knowledge to the farming community for better production systems.

Despite the huge potential of radio and television in knowledge and information dissemination as well as accessibility, studies conducted in third-world countries including Pakistan, Nigeria and Tanzania show that the level of utilization of radio and television as sources of agricultural information among farmers is still low (Mtega, 2018; Fidelugwuowo, 2020; Javaid, 2017).

Several studies, including Nyaplue (2015), Amir et al. (2016), Khan et al. (2019), and Cole and Fernando (2021), have shown that farmers use mobile phones to access information related to agriculture. However, various factors, such as cultural, economic, and infrastructural, can affect technology adoption. Conducting research in Ejura-Sekyedumase, Ghana, can help determine if the trend of mobile phone usage for agricultural information holds true in this specific region and can contribute to the generalizability of the findings across various contexts, thus strengthening the validity of the overall trend.

1.3 RESEARCH OBJECTIVE

The main objective of this study was to examine the role of radio in agricultural development in Ejura-Sekyedumase.

Specific objectives are as follows:

1. To evaluate farmers' sources of agricultural information in Ejura-Sekyedumase
2. To investigate the role of radio in agricultural development in Ejura-Sekyedumase
3. To identify problems farmers in Ejura-Sekyedumase face in accessing agricultural information through radio

1.4 RESEARCH QUESTIONS

The study sought to answer the following questions:

1. What are farmers' sources of agricultural information in Ejura-Skyedumase?
2. What is the role of radio in agricultural development in Ejura-Sekyedumase?
3. What are the challenges confronting the utilization of radio to access information by farmers in Ejura-Sekyedumase?

1.5 SIGNIFICANCE OF THE STUDY

According to Purushothaman, Kavaskar, Reddy and Kanagasabapathi (2003), the type and degree of mass media use in mobilizing people for development are crucial to the success of any development program in third-world nations. Moreover, agricultural extension services aim to communicate research findings and boost farming practices to farmers (Saleh et al., 2018). Before farmers can take advantage of these cutting-edge farming technologies, they must first acquire access to them and learn how to integrate them into their farming methods and systems. The most effective media for popularizing scientific knowledge are radio and television (Fidelugwuowo, 2020; Javaid, 2017; Ango et al., 2012).

Ejura-Sekyedumase is known as the food basket of the Ashanti region in Ghana. Crops such as maize, beans, and watermelon are grown for commercial or subsistence purposes. This study aims to provide evidence of the role of radio in agricultural development in Ejura Sekyedumase, which can inform policy and program development. Additionally, it could provide insights into the factors that influence farmers' use of radio, barriers to its use, and strategies to increase the effectiveness of radio in reaching farmers in rural areas. Lastly, it

could contribute to the literature on radio as a medium for disseminating information and knowledge to farmers in rural areas. The findings of this study could also help extension agents identify the best communication media to contact farmers with agricultural messaging.

1.6 SCOPE OF RESEARCH

This study used a mixed-method approach to gather data and was carried out in four communities within the study area. Ejura, Dromankuman, Bonyon, and Hiawoanwu are the four communities. One hundred farmers were selected to take part in the study. Semi-structured interviews were employed to engage stakeholders such as extension officers and radio managers.



CHAPTER TWO

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

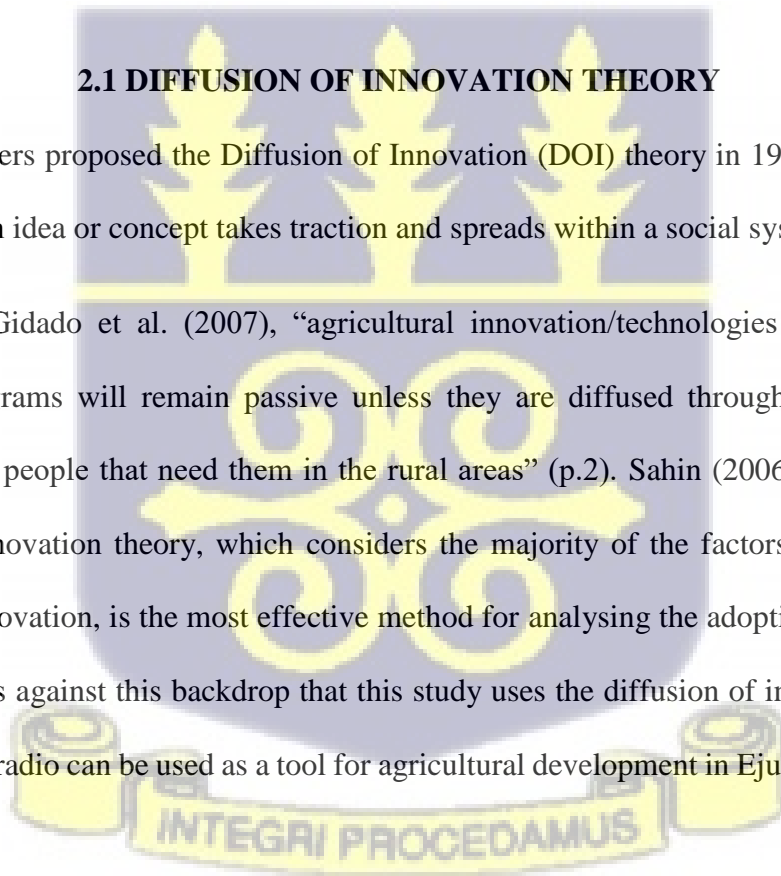
2.0 INTRODUCTION

This study employs the diffusion of innovation theory, one of the most widely used communication theories in the field of agricultural development in the twenty-first century, to understand the importance of development communications in agricultural development. Diffusion of innovation theory is not only concerned with spreading information but also the adoption of innovations in a more systematic and planned way (Servaes, 2003).

2.1 DIFFUSION OF INNOVATION THEORY

Everett M. Rogers proposed the Diffusion of Innovation (DOI) theory in 1962 and used it to describe how an idea or concept takes traction and spreads within a social system.

According to Gidado et al. (2007), “agricultural innovation/technologies and other mass awareness programs will remain passive unless they are diffused through the appropriate channels to the people that need them in the rural areas” (p.2). Sahin (2006) asserts that the diffusion of Innovation theory, which considers the majority of the factors involved in the diffusion of innovation, is the most effective method for analysing the adoption and spread of technology. It is against this backdrop that this study uses the diffusion of innovation theory, to explore how radio can be used as a tool for agricultural development in Ejura-Sekyedumase.



2.2 TENETS OF DIFFUSION OF INNOVATION THEORY

Rogers (2003) defines diffusion as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (p.5). With this backdrop, Rogers explains diffusion as a unique form of communication where members create and distribute information to grasp a common understanding. This type of communication embraces a two-way procedure rather than a linear process where a sender transfers information to the receiver without getting feedback on the message sent. As illustrated in the definition of diffusion by Rogers (2003), there are four tenets of the diffusion of innovation theory. They are innovation, communication channels, social system and time.

2.2.1 INNOVATION

Rogers (2003) described innovation as, “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (p.12). Rogers is of the view that the newness of an idea, practice or object (innovation) determines whether one will accept or reject it.

The innovation-diffusion process can best be understood as a process of reducing uncertainty (Sahin, 2006). Given higher relative advantage, compatibility, trialability, and observability as well as less complexity, innovations are more likely to be accepted quickly by an individual than others (Rogers, 2003). Rogers identified relative advantage, compatibility, complexity, trialability and observability as characteristics of innovation to explain the rates of adoption.

1. **Relative advantage:** This is the degree to which a specific group of users considers innovation to be superior to the idea or practice it replaces (Dibra, 2015). The greater the organization's perceived relative advantage of innovation, the faster it will be adopted (Rogers, 2003).

2. **Compatibility:** Rogers (2003) identifies compatibility as the “degree to which an innovation is perceived as being consistent with existing values, past experiences and needs of potential adopters” (p.15). According to Sahin (2006), although conceptually different, relative advantage and compatibility were considered similar in some diffusion research. The degree of uncertainty associated with innovation is decreased when it is compatible with the desires of potential adopters (Sahin, 2006).
3. **Complexity:** According to Rogers (2003), complexity is the “degree to which an innovation is perceived as difficult to understand and use” (p.16). Some innovations are understood easily by the majority of people in a social system while others are more complicated and spread more slowly. For example, Parisot (1995) noted that technological innovation may present faculty members with the challenge of changing their teaching methodology to incorporate technological innovation into their instruction, resulting in varying degrees of complexity.
4. **Trialability:** The ability to be tested refers to how far innovation can be proven based on little evidence before it can truly persuade the majority of potential users (Dibra, 2015). According to Rogers (2003), trialability is the “degree to which an innovation may be experimented with on a limited basis” (p.16).
5. **Observability:** An innovation is said to be observable when its results are simple for others to recognize.



2.2.2 COMMUNICATION CHANNELS

Communication is referred to as the process by which parties create and share information to attain a common understanding, but the purpose of the diffusion process is premised on the information medium by which one communicates an innovation to other people (Rogers, 2003). According to Rogers (2003), “a communication channel is how messages get from one individual to another” (p.18). Rogers (2003) proposes two important communication channels which include mass media and interpersonal channels.

Mass media channels are any ways of disseminating information that use a mass medium, such as radio, television, newspapers, etc., to allow a small number of people to reach a huge audience, as opposed to interpersonal channels, which include face-to-face interactions between two or more people (Rogers, 2003).

2.2.3 TIME

The third component of the spread of innovation is time. Rogers (2003) divided the role of time in the diffusion of innovation decision-making process into three categories:

- a. The first stage is when a person goes from first hearing about an idea to adopting or rejecting it.
- b. The relative speed with which an innovation is adopted compared to other members of a system
- c. The pace at which an innovation is adopted in a social system, which is commonly expressed as the number of system members.

2.2.4 A SOCIAL SYSTEM

The social system is the fourth component of the diffusion of innovation theory. Individuals, informal groups, organizations and subsystems are components of a social system. According to Rogers (2003), a social system is “defined as a set of interrelated units that are engaged in joint problem solving to accomplish a common goal” (p.23).

2.3 CLASSIFICATION OF ADOPTERS

According to Rogers (2003), adopter categories are the classification of members of a social system based on their inventiveness; this is because not everyone adopts innovations at the same time, and some people accept them much sooner than others. As a result, Rogers (2003) defined five types of adopters. They are innovators, early adopters, the early majority, the late majority and the laggards.

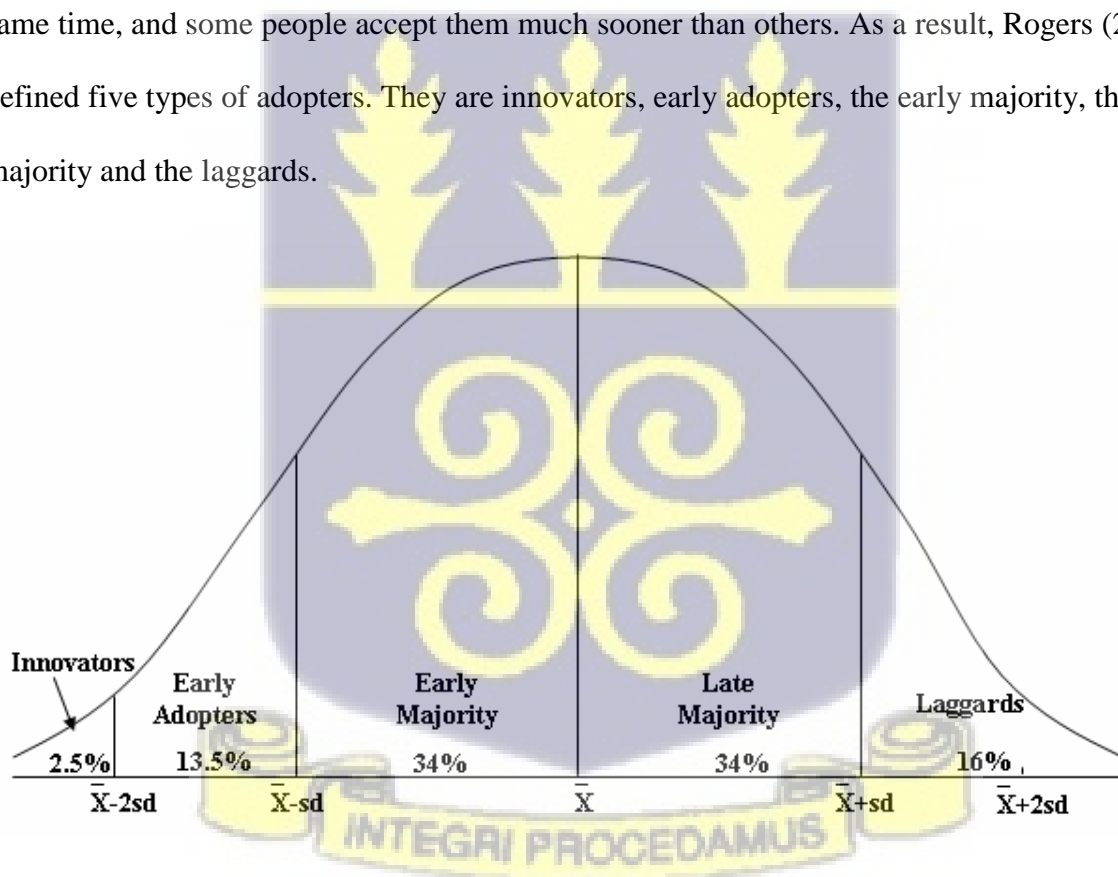


Figure 2. 1 Categories of adopters on the basis of innovativeness

(Source: Rogers 2003)

2.3.1 INNOVATORS

Gatekeepers who bring innovation in from outside the system are innovators (Sahin, 2006). Innovators are large consumers of mass media and also extend their network outside a social system (Rogers, 2003; Sahin, 2006). Rogers (2003) sees innovators as risk-takers who are willing to experience new ideas and care less about the outcome even if it turns out not to be profitable or successful.

2.3.2 EARLY ADOPTERS

Early adopters are the second fastest group to accept an idea after innovators. Early adopters are more likely to be in positions of authority in a social system, therefore other members of the social system look to them for advice and assistance on emerging innovations.

2.3.3 EARLY MAJORITY

This group only adopts the innovation after talking with those who have already done so. It usually takes longer for the early majority to decide to adopt an innovation than it does for innovators and early adopters (Sahin, 2006).

2.3.4 LATE MAJORITY

The late majority frequently waits until the majority of their peers have accepted an innovation before adopting it themselves. As a result, using interpersonal networks of close peers to persuade this group to adopt an innovation is necessary.

2.3.5 LAGGARDS

When it comes to change or accepting an innovation, the laggards hold traditional views, and it frequently takes them longer than the late majority to do so.

2.4 LIMITATIONS OF DIFFUSION OF INNOVATION THEORY

Just like other theories that encounter some level of limitation, the diffusion of innovation theory is no exception. Diffusion of innovation theory is criticized by certain development communication experts for having a linear mode of communication, which hinders active engagement in the communication process and, as a result, slows down progress. According to Servaes (2003), “development aims to educate and stimulate people to be active in self and communal improvements while maintaining a balanced ecology” (p. 291). In the context of the role of radio in agricultural development in Ghana, this limitation implies that the theory may not fully consider the dynamic and interactive nature of communication between farmers and other stakeholders. Agricultural development involves complex interactions, local knowledge, and cultural considerations that might not fit neatly into the linear diffusion model.

Selwyn (2003) claims that the idea paints an inaccurate picture of all inventions being accepted over the long run in one form or another. As a result, it distinguishes between innovators, early adopters, early majority, late majority, and laggards while ignoring non-adopters among the populations that new ideas are intended to reach. In the case of radio and agricultural development in Ghana, not all farmers may adopt radio-based agricultural practices. The theory's focus on adopters could lead to a skewed understanding of the overall impact of radio in the agricultural sector. It is important to consider the non-adopters, as their experiences could provide valuable insight into the role of radio in agricultural development.

According to MacVaugh and Shiavone (2010), the theory is unable to account for the effects of several contexts and domains in that practically all new technology functions. Again, the diffusion of innovation theory was drawn from NPD and marketing theory which was dominated by the assumption that users adopt new technology to maximize their utility. This implies that the theory is context-specific rather than generalizable (MacVaugh & Shiavone, 2010). Agricultural development in Ghana is influenced by various contextual factors, such as socio-economic conditions, cultural practices, and access to resources. The context-specific nature of the diffusion of innovation theory may not capture the complex interactions between radio usage and these factors, potentially oversimplifying the factors that drive or inhibit the adoption of radio-based agricultural practices.

Despite the above limitations, the Diffusion of Innovation theory can be effectively applied to study radio's role in agricultural development in Ghana when these limitations are addressed and mitigated. The theory's strengths can be harnessed by incorporating participatory elements, respecting cultural identity, accounting for non-adopters, and adapting to the context-specific nature of agricultural practices in Ghana to gain valuable insights into the diffusion of agricultural innovations via radio.

2.5 APPLICATION OF DIFFUSION OF INNOVATION THEORY IN OTHER FIELDS OF STUDY

Despite some challenges to the diffusion of innovation theory, it has been used successfully in many fields of study, including agriculture, public health, social work, communication, and market research. In agriculture, the diffusion of innovation theory has been utilized by a number of researches to better understand how farmers react to new information. For example, Zakariah (2008) evaluated the potential of local radio for agricultural communication in Ghana

using the diffusion of innovation theory. Similarly, Mu-azu and Shivram (2017) used the diffusion of innovation theory to evaluate the influence of FM radio broadcasts in local languages on rural community development in the Tamale Metropolis of northern Ghana. Another recent study conducted in Tanzania by Isaya et al. (2018) to find out the sources of agricultural information for women farmers utilized the diffusion of innovation theory.



2.6 LITERATURE REVIEW

2.6.1 HOW FARMERS RECEIVE AGRICULTURAL INFORMATION

Multiple studies have been conducted to investigate the role of media in communicating agricultural information to farmers in various regions, including Nigeria, Ghana and Pakistan. In a study by Abubakar et al. (2009) in Kebbi State, Nigeria, 80 structured questionnaires were randomly administered to the respondents from five districts in the study area. The study revealed that the majority of farmers, accounting for 85% of the survey respondents, said they received their agricultural information through radio and television. Whereas 8.75% of the respondents claimed to access their agricultural information from extension bulletins, 6.25% got their agricultural information from posters. Similarly, a study was conducted in Kaduna North, Nigeria, by Ariyo et al. (2013) to investigate the role of mass media in agricultural technology dissemination among farmers. The study used a well-structured interview schedule to collect its data. The study used a sample size of 108 and found that more than 46% of respondents have access to a radio set and that radio is the primary source of information for farmers in the study area.

In Pakistan, a study by Abbas et al. (2003) to evaluate the role of print media in the dissemination of sugarcane production technologies among farmers in Central Punjab, 58.5%, 22%, and 19.5% of farmers, respectively, said pamphlets, magazines, and newspapers are appropriate for disseminating sugarcane production technologies. The study also found that 92% of farmers in the Faisalabad district used printed resources as an extensive guide for sugarcane production techniques. Another study carried out in Pakistan by Farooq et al. (2007) identified the role of print media in spreading agricultural information among farmers and discovered that fellow farmers and print media were the most popular source of agricultural information among farmers. However, the study indicated that print media was relegated to the

third position after fellow farmers and television, based on the rating of farmers' sources of agricultural information. The study further revealed that the most used form of print media for agricultural information was pamphlets, followed by posters, newspapers, books/booklets, magazines and journals.

Research conducted by Ango et al. (2012) to examine farmers' perception of the role of mass media in sustainable agricultural development found that out of 120 respondents, 82% claimed to receive agricultural information via radio, while 18% of respondents got their agricultural information from television. Ango et al. (2012) argued that the majority of farmers are illiterates and hence prefer radio and television to other communication channels which have to do with reading and writing. Chhachhar et al. (2012) also found that out of 250 farmers from Benazir Abad Sindh, Pakistan, more than half (52%) claimed that radio was their primary source of agricultural-related information. The study further showed that 63.2% of the respondents preferred listening to agricultural-related programmes from 6:00 p.m. to midnight. Similarly, Isaya et al. (2018) conducted a study to investigate the sources of agricultural information for women farmers in Tanzania and discovered that radio was the primary source of information for women farmers in Tanzania; therefore, it was recommended to the Ministry of Agriculture, Food Security, and Cooperatives (MAFC) to make community radio a primary source of information dissemination to farmers. A study in Ekiti State, Nigeria was conducted by Adekunmi and Awoyemi (2017) to analyse the usage of information and communication technology for sustainable agricultural development among rural farmers. The study recruited one hundred and twenty farmers at random from the study area and data was gathered through structured interviews and subjected to descriptive and inferential statistics. According to the study, the majority of respondents (93.3%, 80.8% and 96.7%) stated that they always utilized their mobile phone, television and radio to obtain agricultural information, respectively. Oyeyinka, Bello, and Ayinde (2014) conducted a study in Oyo State, Nigeria, and found that

84% of farmers relied on radio agricultural programs for market information. Although Olaleye et al. (2009) endorsed radio as farmers' primary source of agricultural information, the study revealed that 48% of farmers said radio was ineffective due to issues with language barriers, the clearness of agricultural messages and improper interpretation of scientific terms/ units of measurement as contained in the message to be disseminated.

Hassan, Shaffril, Samah, Ali, and Ramli (2012) conducted research to assess the credibility of television in disseminating agricultural information to Malaysian farmers. The survey recruited 400 farmers as respondents from four states in Malaysia. The research discovered that farmers viewed television as a credible source for disseminating clear and understandable agricultural information. According to the study, although television was deemed reliable due to its capacity to provide up-to-date, unbiased, and factual agricultural data, it was seen to be less credible in terms of providing information at the right time and unable to provide all the necessary information. In a research conducted in 2012 by Chhachhar, Osman, and Omar to evaluate the role of television in Sindh, Pakistan's agricultural development, 41% of farmers chose to watch television programs over other television shows. The study also revealed that nearly all farmers own televisions and that 76% believe television is the ultimate medium for broadcasting programs relating to agriculture.

Another study was conducted in South-East Nigeria by Fidelugwuowo (2020) to evaluate farmers' knowledge and skills for obtaining agricultural information. It found that the majority of farmers relied primarily on informal sources for agricultural information. For example, the study found that 94.9% of farmers depended on friends or co-farmers for agricultural information, 65.3% relied on village gatherings and 60.2% relied on mobile phones. The survey also discovered that farmers' knowledge and abilities were below average, which means farmers do not possess the skills that would enable them to access agricultural information.

A study conducted by Jain, Kumar and Singla (2015) to evaluate mobile technology usage for knowledge dissemination among farmers in Punjab in India found that out of 487 respondents, 99% had access to mobile phones that had multimedia features. The study also indicated that although 63% of farmers were knowledgeable in internet usage, only 38% of the respondents surfed the internet to access agricultural-related information. However, an overwhelming majority (95%) of farmers preferred receiving agricultural information using SMS services. Amir, Peter and Muluken (2016) discovered that the majority (67.7%) of 120 farmers used mobile phones. The study indicated that family size, level of education, off-farm income and farmer perspective are all drivers of farmers' usage of mobile phones to receive agricultural information to improve agricultural performance in Ethiopia. A recent study conducted in the Upper West region in Ghana emphasized the need to increase the use of mobile phone-based weather and market information, adding that mobile phone-based information, such as Esoko, should be updated frequently to provide client-specific information (Etwire et al., 2017). In the same vein, Mega (2018) found mobile phones, colleague farmers, radio and village-based agricultural advisors as farmers' dominant sources of agricultural knowledge. The most common ICT device used by farmers is their mobile phone, according to a subsequent study by Syiem and Raj (2015) that examined the amount of access and usage of ICTs among farmers in the Indian state of Meghalaya. According to the survey, farmers frequently use their mobile phones for social interaction, to get in touch with middlemen for crop marketing and to seek real-time advice on agricultural matters from specialists. Some responders said that the mobile phone is helpful in a medical emergency. Nyaplue (2015) also reiterated the frequent use of mobile phones for accessing agricultural information in a study to evaluate the use of mobile phones in extension delivery in the Eastern region of Ghana

Overall, the above-mentioned studies suggest that radio is a widely used and effective means of disseminating agricultural information to farmers in various regions, including Nigeria,

Ghana and Pakistan. The majority of farmers in these studies reported that radio was their primary source of agricultural information, and many also reported using television and other forms of print media. Furthermore, many of these studies also pointed out that the majority of farmers are illiterate, and therefore prefer to receive information through audio and visual mediums such as radio and television. Additionally, the studies recommend the use of community radio as a primary source of information dissemination to farmers.

2.6.2 RADIO AND AGRICULTURAL DEVELOPMENT

In a study by Chime (2019) to determine the information needs and information-seeking behaviour of urban vegetable farmers in Ghana's La Dade-Kotopon municipality, 62% of the farmers said they needed information to increase farm productivity while 38% of the farmers said they did not need agricultural information for their farms. According to the report, 38.3% of farmers who claimed to need information also said they needed information on disease and pest control while 12.8% and 4.3% requested information on irrigation and marketing, respectively. Timalsina and Pradhan (2019) opined that mass media is widely considered an instrument for promoting and creating awareness and helping people develop positive behavioural change in society. In a recent study by Emovwodo (2019) to assess the impact of radio programmes on agricultural development schemes in Nigeria, the people of Osun State were found to be extremely satisfied with the information gained through radio. It also indicated that radio listeners were encouraged to support agriculture, resulting in increased economic growth and revenue for the state. According to Emovwodo's (2019) study, radio programmes enlighten and assist in wealth-building for those who engage in agriculture.

About 57.5% of respondents affirmed that agricultural programmes were highly beneficial, in a study by Ango et al. (2012) to investigate farmers' perceptions of the role of mass media in sustainable development. The study indicated that farmers perceived high benefits from

agricultural radio programmes based on the profitable output realized by farmers after adopting technologies in the production, processing and storage of their farm produce.

In a study conducted by Okwu, Kuku and Aba (2007) in Nigeria to evaluate the use of radio in the distribution of agricultural information, 98.5% of the respondents indicated that the radio programs they listened to met their information demands. The study further revealed that more than half of the respondents asserted that they gained new knowledge on various improved agricultural practices aired through radio. Similarly, Amin, Issa and Abba (2018) discovered that farmers profited in several ways from using radio to receive agricultural information in a study to evaluate the utilization of radio for agricultural technology diffusion among farmers in Nigeria. These profits include 96.7% of them benefiting from radio programmes concerning modern farming techniques, 96.3% mentioning that agricultural radio educates them on agriculture-related policies, and 90.1% benefiting from the market information they receive through radio programmes. Another study by Ango et al. (2013) found that farmers adopted the information broadcast over the radio because it was very pertinent to their agricultural activities. The study also revealed that 26.7% of farmers had acquired knowledge of agricultural management methods, 17.8% had learned how to prevent post-harvest losses, and 16.7% had learned how to apply fertilizer properly.

A study conducted in Pakistan to evaluate the factors influencing the application of Information and Communication Technologies (ICTs) among farmers by Luqman et al. (2019) found that ICTs, especially radio, enhanced agricultural modernization by increasing yield, efficiency and grower profits. Additionally, Das, Ahmed, and Awal (2019) found that radio and television were beneficial in raising farmers' awareness of and familiarity with contemporary technology. The study found that radio and television shows facilitated farmers' access to marketing information. Moreover, Shivram and Mu-azu (2017) added that local dialect broadcast impacts

rural community development by improving the awareness and knowledge of solutions to the community's development problems in agriculture.

2.6.3 CONVENIENT TIME FOR LISTENING TO RADIO

Abubakar et al. (2009) noted that 65% of farmers claimed night time is more convenient for listening to agricultural programmes on the radio and 22.5% identified the afternoon as their preferred time. In contrast, Ango et al. (2012) discovered that many farmers (43.3%) indicated that they prefer listening to radio programmes in the morning hours, while 35% listened to the radio at night; 14.2% of farmers listened to the radio in the evening whereas 7.5% of the respondents listened to agricultural programme in the afternoon. According to Mtega (2018), in a recent study conducted in Tanzania, most farmers engage in agricultural activities from morning to afternoon hours, so the appropriate time for broadcasting agricultural programs should be in the evening. The study indicated that 51.8% of farmers preferred listening to agricultural programs in the evening, while 35.2% claimed to listen to the radio at night. In addition, 6.2% listened to the radio in the morning and 6.7% in the afternoon.

2.6.4 CONSTRAINTS TO FARMERS' ACCESS TO AGRICULTURAL INFORMATION

According to Ango et al. (2012), the main barrier impeding the spread of agricultural information was a shortage of electricity. According to the study, farmers watch and listen to agricultural programming on television and radio, respectively, and it can be challenging to acquire information through these media during power outages. In a similar study, Abubakar et al. (2009) revealed that 35% of the farmers identified the high cost of purchasing and maintaining media sources (battery, television, radio), 20% identified the inability to respond

to media immediately, 20% identified power failure, 13.75% identified no problem, while 11.25% identified poor signal as constraints with the information received from the radio.

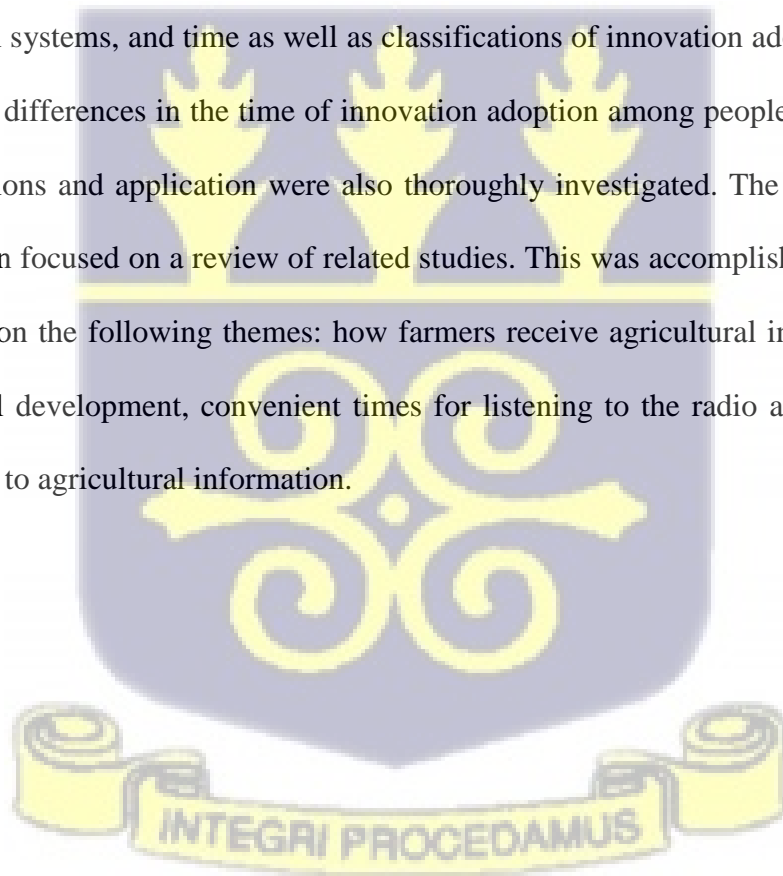
Mtega (2018) discovered in a recent study conducted in Tanzania that access to reliable sources of electric power influenced the use of radio and television as sources of agricultural information. According to the research, 60.1% and 89.7% of radio and television owners had an electric power connection in their homes respectively, and thus frequent power outages affect their continued use of radio and television to access agricultural information. The study also noted that some areas had poor radio reception, limiting some farmers' access to information. Furthermore, the study found that not all agricultural knowledge categories required by farmers were delivered via radio and television programs. As a result, the relevance of content is a factor that prevents farmers from accessing agricultural information. Adekunmi and Awoyemi (2017) noted that the price of ICTs was not affordable and constrained farmers from accessing agricultural information. The study indicated that 61.7% of farmers claimed that ICTs were too expensive.

Nsukka rural farmers' access to information is constrained by poor radio and television signals, poor extension officer public relations, a lack of electricity or frequent power outages in most Nsukka villages, illiteracy, and a lack of financial means to purchase newsletters and leaflets that publish pertinent agricultural information (Obidike, 2011). Chime (2019) conducted a study in Ghana to identify the information needs and information-seeking behaviour of urban vegetable farmers in the La Dade-Kotopon district and discovered that about one-third of farmers said that the absence of public extension officers hinders their access to agricultural information. About 85% of the respondents claimed that their inability to use the internet limits their access to information, while 62% claimed their incapacity to read and write limits their information accessibility. In a similar vein, Osei et al. (2017) assessed the sources of information for urban vegetable farmers in Accra, Ghana and found that poor public relations

of the agricultural extension agents, farmers' inability to read and write (illiteracy), information not broadcast on radio and television in the local languages, and a lack of seminars, workshops, and training programs for urban vegetable farmers were among the major obstacles to farmers' access to information.

2.7 CHAPTER SUMMARY

This chapter provided a general overview of the various related studies under consideration. It began with a comprehensive review of the diffusion of innovation theory, which served as the theoretical framework for this research. The theoretical framework focused on the four elements of the diffusion of innovation theory, which include innovation, communication channels, social systems, and time as well as classifications of innovation adopters, which are required due to differences in the time of innovation adoption among people. The innovation theory's limitations and application were also thoroughly investigated. The chapter's second and final section focused on a review of related studies. This was accomplished by reviewing related studies on the following themes: how farmers receive agricultural information, radio and agricultural development, convenient times for listening to the radio and constraints to farmers' access to agricultural information.



CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

In this section of the research, the focus was on the methodology used for gathering data and the process of selecting participants from the Ejura-Sekyedumase area. A mixed-method approach was utilized to collect quantitative and qualitative data from farmers and other stakeholders.

The data collection methods used in this study are a survey (questionnaire) and an in-depth interview. The questionnaire was employed to collect Ejura-Sekyedumase farmers' demographic and background data and discover their common communication channels for receiving agricultural information. The structured interviews were employed to gather qualitative information from stakeholders such as extension officers and radio presenters. The survey included one hundred farmers (100) from four communities in Ejura-Sekyedumase.

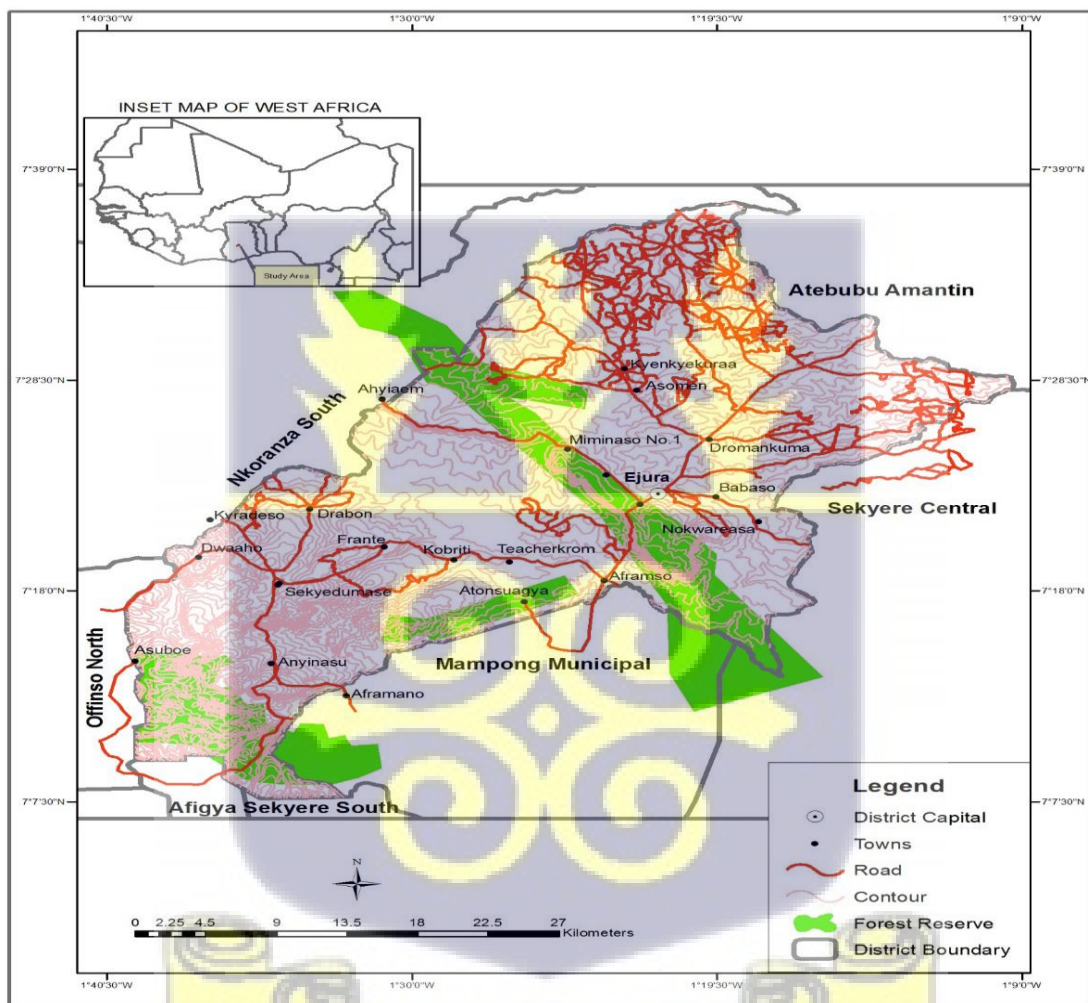
3.1 STUDY AREA

Legislative Instrument (L.I) 2098 established the Ejura-Sekyedumase Municipal Assembly (ESMA) as a municipal in 2012, with Ejura as its capital. Ejura-Sekyedumase district is located in the northern part of the Ashanti region of Ghana. Ejura-Sekyedumase can be found between the latitudes of 7°9' N and 7°36' N and the longitudes of 1°5' W and 1°39' W. It is bordered on the northwest by Atebubu-Amantin District, on the east by Mampong Municipality, on the south by Sekyere South District, and the west by Offinso Municipality. According to the ESMA-composite budget (2020), Ejura Sekyedumase has a population of 121,765.

Agriculture employs 69.7% of the population of people living in Ejura Sekyedumase (Population and Housing Census, 2010). Consequently, agriculture is the primary contributor

to local economic growth. As a result, unemployment and poverty in the municipality can further be reduced when there is a corresponding growth in agriculture. According to the 2010 PHC, crop farming is practised by 97.4% of agricultural households, while livestock rearing is practised by 31.9 %. Since crop farming is the most common activity among the population, this study will concentrate on it. The image below shows the district map of Ejura-Sekyedumase.

Figure 3. 1 Map of Ejura-Sekyedumase



Source: Allotey, 2018

Table 3.1 below illustrates the regional distribution of authorized FM broadcasting stations as well as their breakdown in the various classification groups.

Table 3. 1 Regional distribution of authorized FM broadcasting stations in Ghana

No.	Name of regions	Total no. Authorised	Public	Public (foreign n)	Comm unity	Camp us	Comm ercial	Total no. In operati on	Total no. Not in operati on
1	Ashanti	99	2	1	14	4	78	79	20
2	Bono	56	1	0	6	2	47	40	16
3	Bono East	30	2	0	4	0	24	26	4
4	Ahafo	12	0	0	1	0	11	8	4
5	Central	56	2	0	13	3	38	39	17
6	Eastern	50	2	0	13	1	34	38	12
7	Greater Accra	74	2	3	10	4	55	62	12
8	Northern	51	3	0	9	2	37	27	24
9	Savannah	11	3	0	4	0	4	8	3
10	North East	13	1	0	5	0	7	3	10
11	Upper East	34	2	0	9	3	20	22	12
12	Upper West	32	2	0	11	2	17	18	14
13	Volta	45	3	0	4	1	37	37	8
14	Oti	14	1	0	3	0	10	9	5
15	Western	83	2	1	8	2	70	56	27

16	Western North	24	3	0	0	0	21	17	7
Total		684	31	5	114	24	510	489	195

Source: (National Communication Authority, 2021)

Table 3.1 shows that out of 684 authorized FM broadcasting stations in Ghana, the Ashanti region had the majority of both authorized and operational FM broadcasting stations, 99 and 79, respectively. Although the Western had the second-highest number of authorized FM broadcasting stations (83), it also had the third-highest number of operational stations (56). Greater Accra, on the other hand, had the third-highest number of authorized FM broadcasting stations (74) and the second-highest number of operational FM stations (62). The fact that the Ashanti region had the most authorized and operational FM broadcasting stations necessitates this study to assess the role of radio in agriculture development in Ejura-Sekyedumase, which falls under the Asanti region of Ghana.

However, there are two main radio stations in Ejura-Sekyedumase, Today’s Radio and Naagyei FM. These two radio stations fall under the classification of commercial/private radio stations. Therefore, this study prioritizes the role of commercial radio stations in the agricultural development in Ejura-Sekyedumase.

3.2 RESEARCH DESIGN

According to Lelissa (2018), a research design is the “overall plan for connecting the conceptual research problems with the pertinent (and achievable) empirical research” (p.1).

The research design guides the research to make informed decisions on appropriate participant selection methods and procedures for data collection as well as analysis of study findings. A mixed-method research design was employed in this study, utilizing both quantitative and qualitative methods such as a survey questionnaire and a semi-structured interview to generate

primary data for the research. Creswell (2014) categorized research design into three. They are qualitative research, quantitative research and mixed-method research designs. Quantitative research design is concerned with testing objective ideas by investigating the relationship among variables, whereas qualitative research is concerned with exploring and understanding the meaning individuals or groups attach to a social or human problem (Creswell, 2014). This study sought to gather a deeper understanding of the role of radio in agricultural development by analysing numeric patterns from quantitative data and extracting specific details from qualitative data. Hence, this study employs a mixed-method design.

A mixed-method approach is a research design that combines quantitative and qualitative data collection, analysis and interpretation in a single study (Creswell, 2014; Powoh, 2016). According to Powoh (2016), the central concept is that when a researcher uses both quantitative and qualitative methods, he or she will have a greater knowledge of the topic than if they used only one of them. In other words, Creswell (2014) explained that a mixed-method approach can help to enhance the limits of both qualitative and quantitative approaches. Farmers, extension officers and radio presenters in Ejura-Sekyedumase were among those who participated in the study. It was conducted in four communities within the study area. The four communities are: Ejura, Dromankuman, Bonyon and Hiawoanwu.

3.3 QUANTITATIVE APPROACH

The systematic investigation of phenomena using numerical data and statistical, mathematical, or computational approaches is known as quantitative research. In order to determine who, how much, what, where, when, how many, and how a phenomenon occurred, it is utilized to analyse numerical data (Apuke, 2017).

According to Apuke (2017); survey research, correlational research, experimental research and causal-comparative research are the various categories of quantitative research. Survey research refers to the use of statistical methods in conjunction with a scientific sampling process and a designed questionnaire to measure the characteristics of a specific group (Apuke, 2017).

The survey method was used in this study because it aimed to employ a questionnaire design to collect information from a segmentation of farmers in Ejura-Sekyedumase, which would then be generalized to the total population of Ejura-Sekyedumase. Expatiating on why the survey is important for this study, Apuke (2017) explained:

Kraemer (1991) outlines three basic tenets in survey research, namely, survey is used to describe quantitatively a sectional aspect of a given population which involves studying the relationship, in survey research method, data are obtained from people, and lastly, survey samples a part of population which is later used to generalize the whole population, i.e., a section of a population is sampled to represent the whole population characteristics, viewpoint as well as opinion as the case maybe.

3.3.1 POPULATION AND SAMPLING

According to the National Information Technology Agency (NITA) (2020), the projected population of Ejura Sekyedumase is 107,118, comprising 54,364 females and 52,754 males.

Due to the inability of the survey to cover all farmers in Ejura-Sekyedumase, a sampling technique was used to choose survey respondents. The research sample size was produced by selecting 100 farmers using a random sampling approach. Taherdoost (2016) defines a "simple random sample" as "every case in the population having an equal chance of being included in the sample" (p.21).

The study employed a multi-stage method of sampling. At stage one, the study area was purposively chosen as the food basket of the Ashanti region of Ghana. At stage two, 20 communities were purposively selected based on the high level of agricultural activities. At stage three, a simple random sampling technique was used to obtain four communities for the study. The four (4) communities selected are Ejura, Dromankuman, Bonyon, and Hiawoanwu. Finally, simple random sampling techniques were used at the community level to obtain 100 farmers within the range of 26 to 54.

3.3.2 DATA COLLECTION INSTRUMENT

A 15-item questionnaire was designed to acquire data. The farmers were all required to complete the same questionnaire. Both closed-ended and open-ended questions were included in the questionnaire, which was created per the study objectives. The five sections of the research tool are as follows:

Section A: Demographic and background data

This section was composed of three main questions used to measure the personal characteristics of the farmers. The variables assessed in this section are age, educational level, and gender. These variables provided useful information about the respondents, and the study investigated the relationship between these variables and other independent variables.

Section B: Farmer's preferred channel of receiving agricultural information

This section also had three questions that sought to investigate farmers' sources of agricultural information.

Section C: Radio exposure

The purpose of this section of the survey instrument was to investigate farmers' radio exposure. Farmers' access to radio, rate of radio listenership, and preferred time of day for radio listening were all investigated in this section.

Section D: The role of radio in agricultural development

Under this section, farmers who rely primarily on the radio for agricultural information were investigated to determine whether they benefited from agricultural broadcast programmes made on radio and whether radio programmes enlighten and assist agricultural workers in creating wealth.

Section E: Challenges in using radio to promote agricultural development

The final section of the research instrument sought to investigate the difficulties farmers face when using radio to access agricultural information.

3.3.3 DATA ANALYSIS

The data collected were analysed using descriptive statistics and percentages with the aid of Statistical Package for Social Sciences (SPSS) software.

3.4 QUALITATIVE APPROACH

Just like many social science concepts, there is no consensus among many scholars on the definition of qualitative research. However, generally, qualitative research aims to elucidate the human parts of the study by employing specialized approaches to investigate how people see and feel the world (Given, 2008).

3.4.1 POPULATION AND SAMPLING

The stakeholders were selected using the purposive sampling technique. According to Wimmer and Dominick (2011), purposive sampling is a non-probability sampling method that chooses participants who have access to the information needed. As a result, participants are intentionally selected based on their knowledge of the research problem or topic. The basis for selecting extension officers was that the farmers must pick them based on their involvement in agricultural information dissemination.

3.4.2 DATA COLLECTION INSTRUMENT

A semi-structured interview was used to garner data for the study. The questions were concentrated on the research objectives, specifically the use of radio in agricultural development.

3.4.3 DATA ANALYSIS

The in-depth interviews' recorded data was manually transcribed. Wimmer and Dominick (2011) define qualitative data analysis as involving four general processes. They include categorizing incidents, elaborating and refining categories, looking for relationships and themes among categories and simplifying and integrating data into a coherent theoretical structure. The qualitative data collected for this study were analysed using the four processes listed above.

3.5 VALIDITY AND RELIABILITY OF DATA COLLECTION INSTRUMENTS

The data collection instruments were examined by an academic supervisor for verification, validity and reliability. After this, necessary changes were made to accommodate the academic

supervisor's comments. The questionnaires were carefully distributed to four communities in Ejura-Sekyedumase and the interview guides were utilized to gather data from stakeholders such as an extension officer and a radio presenter. All of this was done to verify that the data acquired was accurate and reliable.

3.6 ETHICAL CONSIDERATIONS

Participants received a thorough explanation of the study's goal to obtain their informed consent, resulting in more genuine involvement. The study was designed to follow ethical guidelines such as information confidentiality, anonymity and voluntary participation.

3.7 CHAPTER SUMMARY

The chapter explained the methodology of the study. It started with a preliminary description of the research field. In addition, the chapter included a theoretical explanation as well as examples of how the semi-structured interview and survey methods were employed in the field. This chapter also sheds light on some of the issues that the researcher ran into during the data collection process. Poor roads made data collection excursions difficult and the cost of administering questionnaires in all four areas was among the research hurdles.



CHAPTER FOUR

FINDINGS

4.0 INTRODUCTION

The study sought to assess the role of radio in agricultural development in Ejura-Sekyedumase, Ghana. This chapter presents the findings from the survey and the semi-structured interviews conducted to collect the data required for the study. The research results obtained from the survey (questionnaires) were displayed on frequency tables and charts for easy analysis and understanding. Additionally, cross-tabulations were employed to establish the kind of relationship that exists between two or more variables. A total of 100 questionnaires were administered, along with the obtained qualitative data from the semi-structured interviews for interpretation and analysis. The findings from the two study instruments were analysed under the same themes for a comprehensive and easy interpretation.

4.1 DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS OF RESPONDENTS

4.1.1 GENDER DISTRIBUTION OF RESPONDENTS

The results of the study indicated that 79% of farmers were males while females make up the remaining 21% of the total sample of respondents.

INTEGRI PROCEDAMUS

4.1.2: AGE DISTRIBUTION OF FARMERS

Table 4. 1 Age distribution of respondents

	Frequency	Percent
Valid 18-25	10	10.0
26-33	21	21.0
34-41	29	29.0
42-49	21	21.0
50 and above	19	19.0
Total	100	100.0

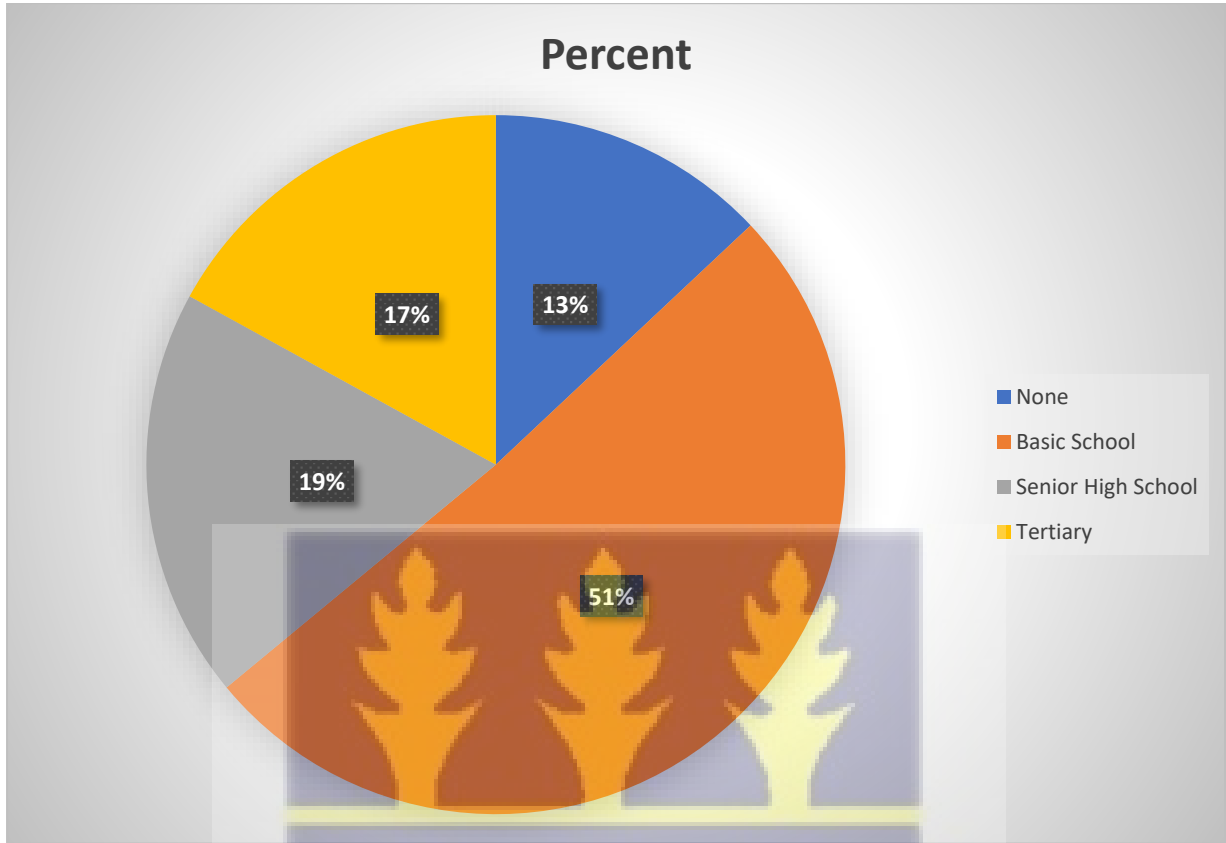
(Field survey, 2022)

From the field survey, the average age of respondents was 37.5, while the minimum age of farmers falls below 18 and 25 years. The maximum age range is 50 years and older. Table 4.1 shows that majority of the farmers (29%) were between the ages of 34 years and 41 years. Both farmers within the age group of 26 years and 33 years and farmers between the ages of 42 years and 49 years had the same level of representation (21%), farmers who are 50 years and up constituted 19% of the total respondent.



4.1.3 DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION

Figure 4. 1 Distribution of respondents by level of education



(Field survey, 2022)

A minority of farmers constituting 13% of total respondents were illiterates because they lack formal education. On the other hand, the vast majority of farmers (87%) had some level of formal education, ranging from primary school to tertiary degree holders. From Figure 4.1, more than half of farmers (51%) had primary education. The least number of farmers (17%) with formal education had tertiary education.

**4.2 FARMERS' PREFERRED CHANNEL OF AGRICULTURAL INFORMATION
AND EXPOSURE TO RADIO**

4.2.1 FARMERS' PREFERRED SOURCE OF AGRICULTURAL INFORMATION

Table 4. 2 Farmer's preferred channel for receiving agricultural information

Farmer's preferred source of agricultural information				
		Responses		Percent of Cases
		N	Percent	
Preferred source of agricultural information	Newspaper	2	0.60%	2.00%
	Television	39	10.90%	39.00%
	Radio	82	22.90%	82.00%
	Internet	40	11.20%	40.00%
	Colleague farmers	73	20.40%	73.00%
	Extension officers	29	8.10%	29.00%
	Opinion Leaders	3	0.80%	3.00%
	Information centre	4	1.10%	4.00%
	Friends and family	26	7.30%	26.00%
	Personal experience	30	8.40%	30.00%
	Farmers' group/association	30	8.40%	30.00%
Total		358	100.00%	358.00%

(Field survey, 2022)

According to Table 4.2, a little less than one-third (22.90%) of farmers preferred to receive agricultural information via radio, while 20.40% of farmers preferred colleague farmers. The

internet and television are the third and fourth most popular sources, with 11.20% and 10.90%, respectively. Friends & family and extension officers are among the least preferred channels, accounting for 7.30% and 8.10% of the respondents. The findings from the interviews demonstrated that radio is the most preferred communication channel for receiving agricultural information by farmers in Ejura-Sekyedumase due to its availability and convenience within the district. The findings from the interviews further indicated that the delivery of extension services and information does not depend on one communication channel but many such as mobile phones, radio and face-to-face interaction. Hence, the kind of extension service needed determines the appropriate communication channel to use. This is further explained by the lead extension officer for Ejura-Sekyedumase:

The extension work requires that in some situations, certain communicational channels are more appropriate. You can even receive the extension service on phones, we call that e-extension. For instance, a farmer may call you on phone about a problem and you can easily help the farmer especially if it does not require your physical presence. For example, if a farmer buys any chemical and wants to know the quantity and how to measure it for use, you can easily help on the phone that is if he has a measuring tool or something with calibrations, but if there is no measuring tool then you need to be there.



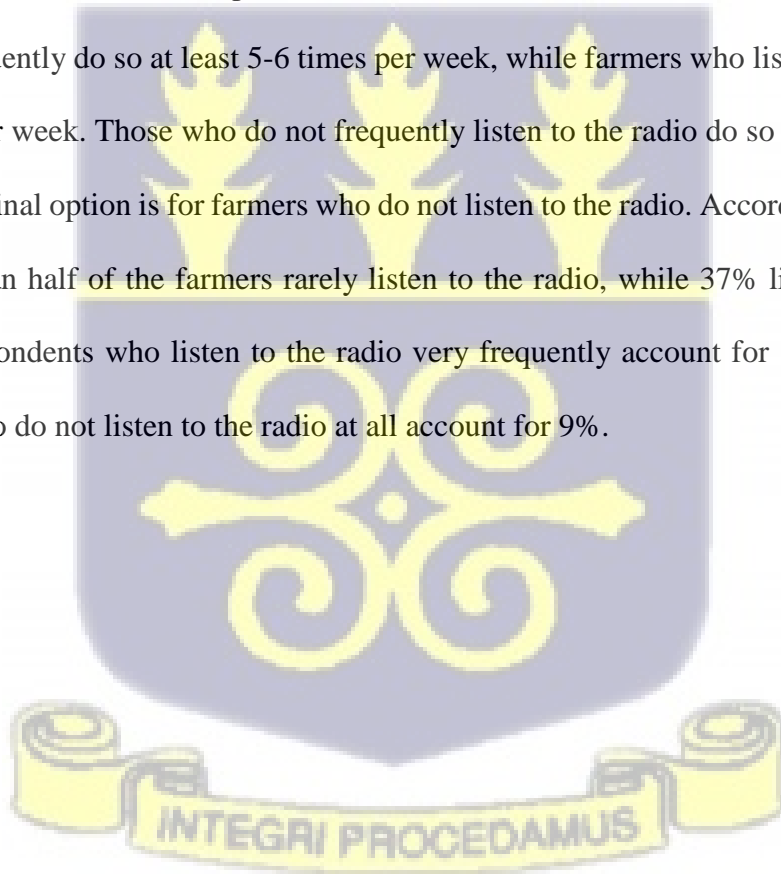
4.2.2 FARMERS' FREQUENCY OF RADIO LISTENERSHIP

Table 4. 3 How frequently do you listen to radio?

How frequently do you listen to radio?	Frequency
Very frequently	10
Frequently	37
Not frequent	44
Not at all	9
Total	100

(Field survey, 2022)

The frequency of radio listenership was measured in a week. Those who claim to listen to the radio very frequently do so at least 5-6 times per week, while farmers who listen frequently do so 3-4 times per week. Those who do not frequently listen to the radio do so at least 1-2 times per week. The final option is for farmers who do not listen to the radio. According to Table 4.3, slightly less than half of the farmers rarely listen to the radio, while 37% listen to the radio regularly. Respondents who listen to the radio very frequently account for 10% of the total, while those who do not listen to the radio at all account for 9%.



4.2.3 FARMERS’ PREFERRED TIME FOR LISTENING TO RADIO

Table 4. 4 What time of the day do you listen to radio?

What time of the day do you listen to radio?	Responses		Percent of Cases
	N	Percent	
Morning (5am- 9am)	43	32.8%	47.3%
Late morning (10am- 12 noon)	3	2.3%	3.3%
Afternoon (1pm- 3pm)	4	3.1%	4.4%
Late afternoon (4pm- 6pm)	2	1.5%	2.2%
Evening (7pm- 9pm)	78	59.5%	85.7%
Night (10pm- 12am)	1	0.8%	1.1%
Total	131	100.0%	144.0%

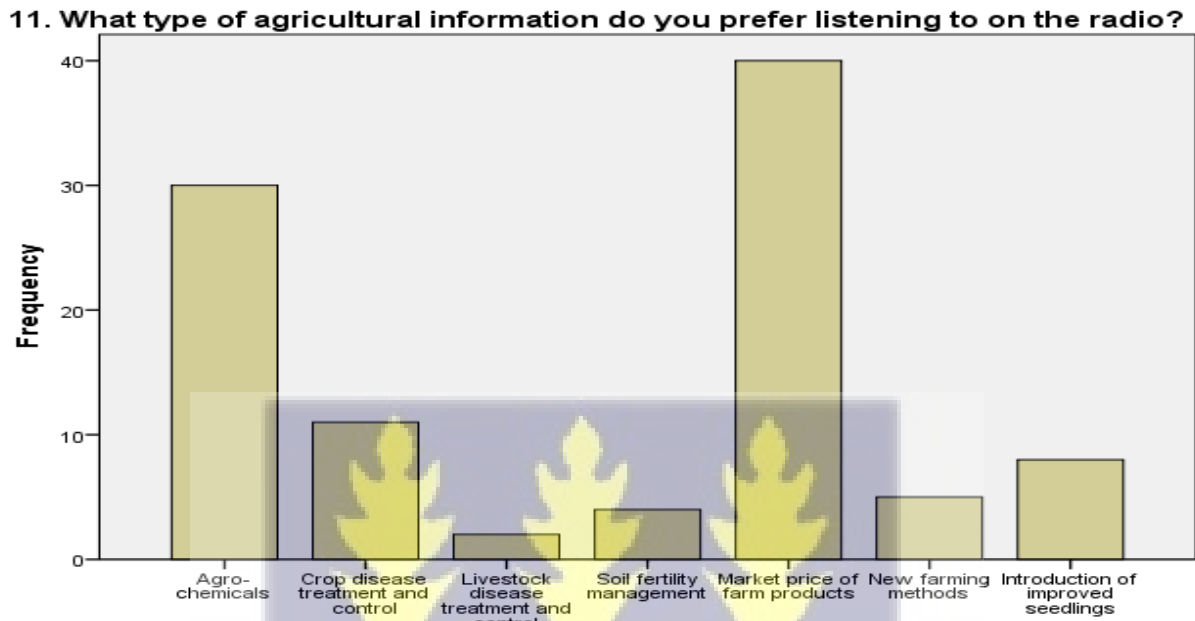
(Field survey, 2022)

Table 4.4 shows that an overwhelming majority of farmers (59.5%) favoured listening to the radio in the evening from 7:00 PM to 9:00 PM out of 131 responses. From 5:00A.M to 9:00 AM, 32.8% of respondents preferred listening to the radio. While 0.8%, 1.5%, and 2.3% of responses were skewed towards the night, late afternoon, and late morning respectively. According to the interview, the fact that farmers frequently go to their farms before the sun rises to work on their farms and return home in the evening explains why many farmers prefer to listen to the radio in the evening to other times of the day.

4.3 THE ROLE OF RADIO IN AGRICULTURAL DEVELOPMENT

4.3.1: WHAT TYPE OF AGRICULTURAL INFORMATION DO YOU PREFER LISTENING TO ON THE RADIO?

Figure 4. 2 Type of information needed by farmers



(Field survey, 2022)

Figure 4.2 shows that two-fifth (40%) of farmers preferred listening to information about the market price of farm products on the radio while exactly one-third (30%) preferred listening to agrochemical information. The third type of agricultural information that farmers are interested in receiving via radio is crop disease treatment and control (11%). The least sought-after agricultural information via radio by farmers in Ejura-Sekyedumase includes soil fertility management, livestock disease treatment and control, the introduction of improved seedlings and new farming methods.

4.3.2 HOW SATISFIED ARE YOU WITH THE AGRICULTURAL INFORMATION YOU RECEIVE?

Table 4. 5 How satisfied are you with the agricultural information you received?

How satisfied are you with the agricultural information you received?				
		Frequency	Valid Percent	Cumulative Percent
	Very satisfied	46	46.0	46.0
	Satisfied	31	31.0	77.0
	Somewhat satisfied	12	12.0	89.0
	Not satisfied	11	11.0	100.0
	Total	100	100.0	

(Field survey, 2022)

From Table 4.5, the majority of farmers (46%) are very satisfied with the agricultural information they receive via radio, while 31% are satisfied. Only 11% of farmers were dissatisfied with the agricultural information they received over the radio, while 12% were somewhat satisfied.

The interviews' findings also revealed that farmers in Ejura-Sekyedumase receive their fair share of benefits from the agricultural programs broadcast on the radio. In reiterating the benefits of agricultural broadcast programmes to farmers, the Akufo Mmr3 show host on Naagyei FM stated:

Based on the feedback we get from our listeners, the programmes held here had a great impact in increasing their farm production. For instance, the winner of best farmer last year said in an interview with us that she used to listen to our programmes and advice from experts on the show about seed planting and it was really helpful to

her and was even one of the reasons why her agricultural production increased to warrant her this reward.

The comment from Ejura-Sekyedumase's senior extension officer below further exemplifies the value of radio:

We've been working with Farmer Based Organizations (FBOs) for a long time and have realized that integrating the mass media as part of our extension channels was very important. Even with the FBOs, we still had many farmers that could not be reached. As a result, the mass media stepped in to assist us in this regard, allowing us to reach out to other farmers in remote locations that we are unable to reach. We have radio programmes that we run every week on Thursdays and Wednesdays. At the end of the programmes, the phone lines are open, and we listen to farmers' concerns and address as many as possible. We sometimes refer some of their challenges to the specific area extension agent. For example, if you called from community A to explain your farming challenge, the officer on the radio will refer you to the specific extension officers in charge of community A, so he can come and observe the issue and provide the needed solution.



4.3.3 DO RADIO PROGRAMMES HELP FARMERS IN WEALTH GENERATION?

Out of the overall sample of 100 farmers, 63 farmers believe radio programmes in Ejura-Sekyedumase enlighten and help those working in agriculture to generate more money, whereas 37 farmers disagree.

The results of the quantitative research and the results of the interviews did not differ in terms of how well radio can assist farmers earn income. The interviews revealed that radio programs significantly improve farmers' opportunities for making money. The host of Naagyei FM's agriculture show gave his opinions on how radio might help farmers make more money:

Yes, all of the agricultural programmes that we hold here are targeted at helping them to get money. For example, teaching farmers about new farm practises like land preparation, fertilizer application and harvesting can help them save money. Also, providing them with information on the current market price of farm produce helps them make money after harvest.



4.3.4 CROSSTABULATION OF FARMERS' PREFERRED CHANNEL FOR RECEIVING AGRICULTURAL INFORMATION AND FACTORS INFLUENCING THEIR CHOICE OF MEDIA CHANNEL

Table 4. 6 Crosstabs of reasons for choosing a particular channel* farmers preferred channel

Reasons for choosing a particular channel* farmers preferred channel													
		Preferred channel for information											Total
		Newspaper	Television	Radio	Internet	Colleague farmers	Extension officers	Opinion Leaders	Information center	Friends and family	Personal experience	Farmers' group/association	
Reasons for choice of media channel	Accessibility	2 2.0%	31 31.3%	61 61.6%	29 29.3%	48 48.5%	26 26.3%	3 3.0%	4 4.0%	15 15.2%	19 19.2%	21 21.2%	67 67.7%
	Convenience	2 2.0%	37 37.4%	72 72.7%	37 37.4%	63 63.6%	27 27.3%	3 3.0%	4 4.0%	23 23.2%	27 27.3%	26 26.3%	85 85.9%
	Cheap	1 1.0%	12 12.1%	17 17.2%	13 13.1%	16 16.2%	11 11.1%	1 1.0%	2 2.0%	3 3.0%	6 6.1%	6 6.1%	18 18.2%
	Credibility/reliability of information	1 1.0%	17 17.2%	32 32.3%	20 20.2%	37 37.4%	15 15.2%	2 2.0%	3 3.0%	13 13.1%	14 14.1%	15 15.2%	44 44.4%
	Allows for demonstration	1 1.0%	18 18.2%	22 22.2%	9 9.1%	24 24.2%	10 10.1%	2 2.0%	2 2.0%	6 6.1%	10 10.1%	8 8.1%	28 28.3%
	Immediate feedback	0 0.0%	13 13.1%	25 25.3%	11 11.1%	24 24.2%	8 8.1%	1 1.0%	1 1.0%	6 6.1%	8 8.1%	10 10.1%	25 25.3%
	Total	2 2.0%	39 39.4%	81 81.8%	39 39.4%	73 73.7%	29 29.3%	3 3.0%	4 4.0%	25 25.3%	30 30.3%	30 30.3%	99 100.0%

(Field survey, 2022)

A vast majority of farmers (61.6%) who rely on the radio for agricultural information claimed that it is accessible, whereas 72.7% said they preferred radio because it is convenient. Over one-third of the respondents (32.3%) preferred the radio because of the credibility/reliability of the information it provides, while 25.3% claimed they prefer the radio because it gives immediate feedback on information. Similarly, nearly half of the respondents (48.5%) rely on their colleague farmers for agricultural information because they are easily accessible while the vast majority rely on their colleague farmers for agricultural information because it is convenient. On the other hand, 37.4% and 24.2% of farmers rely on fellow farmers for credibility/reliability of information and demonstration.

4.3.5 CROSSTABULATION OF FARMERS' ACCESS TO RADIO AND FARMERS

USE OF RADIO FOR AGRICULTURAL INFORMATION

Table 4. 7 Crosstab of farmers' access to a radio set and farmers' use of radio for agricultural information

Cross tab of farmers' access to a radio set and farmers' use of radio for agricultural information				
		8. Do you use radio as a source of agricultural information?		Total
		Yes	No	
7. Do you have access to a radio set?	Yes	67	22	89
		75.3%	24.7%	100.0%
		67.0%	22.0%	89.0%
	No	8	3	11
		72.7%	27.3%	100.0%
		8.0%	3.0%	11.0%
Total		75	25	100
		75.0%	25.0%	100.0%
		75.0%	25.0%	100.0%

(Field survey, 2022)

As shown in Table 4.7, 67% of farmers with radio access used it for agricultural information, while 22% of farmers with radio access do not use radio to receive agricultural information.

A Pearson Chi-square test was run to determine the nature of the relationship between farmers' access to a radio set and farmers' use of radio for agricultural information. The results showed that there is no statistically significant association between the two variables $X=0.033$, $P=0.855$.

4.3.6 CROSSTABULATION OF FREQUENCY OF RADIO LISTENING AND TIME OF DAY FOR LISTENING TO RADIO

Table 4. 8 Crosstab of farmers’ access to a radio set and farmers’ use of radio for agricultural information

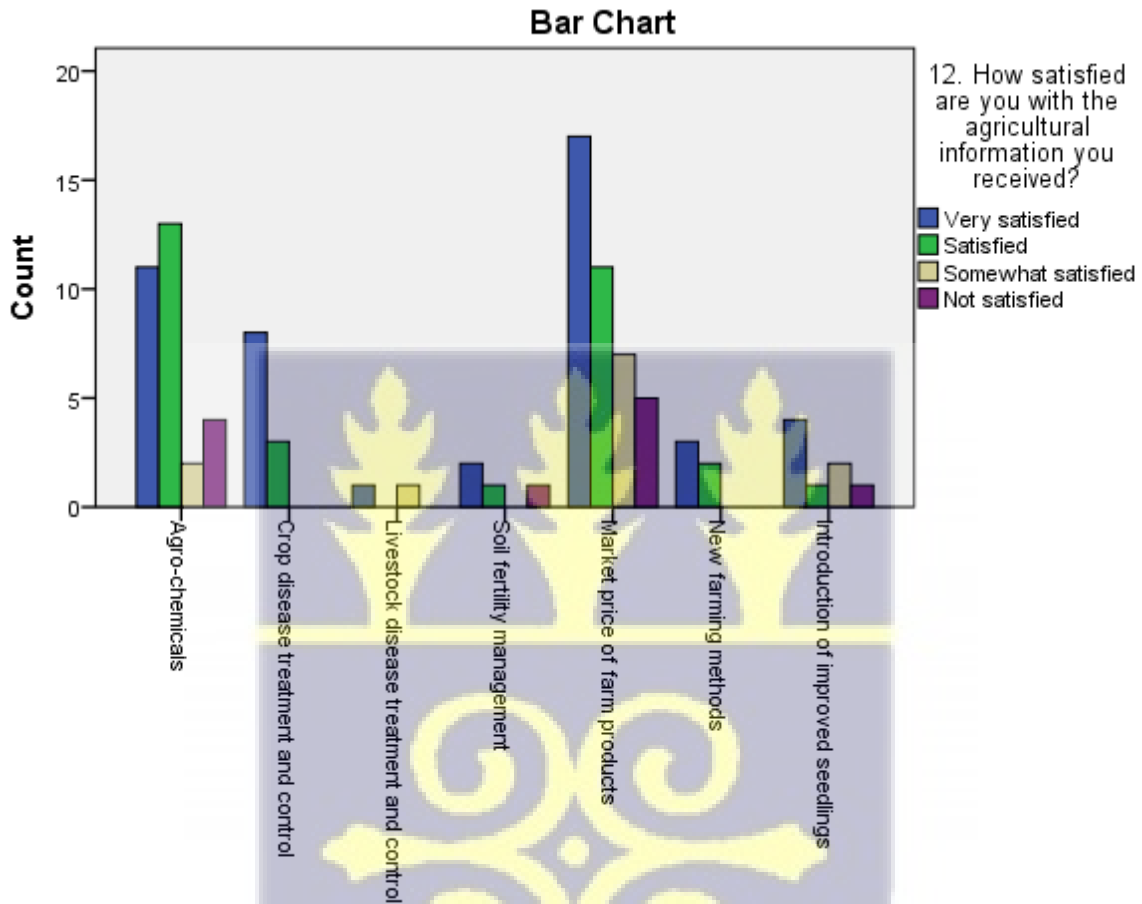
		Time of day for listening to radio						Total
		Morning (5am- 9am)	Late morning (10 am- 12 noon)	Afternoon (1pm- 3pm)	Late afternoon (4pm- 6pm)	Evening (7pm- 9pm)	Night (10pm- 12am)	
How frequently do you listen to radio?	Very frequently	9 9.9%	0 0.0%	2 2.2%	0 0.0%	9 9.9%	0 0.0%	10 11.0%
	Frequent	22 24.2%	2 2.2%	2 2.2%	0 0.0%	34 37.4%	0 0.0%	36 39.6%
	Not frequent	11 12.1%	1 1.1%	0 0.0%	2 2.2%	33 36.3%	0 0.0%	42 46.2%
	Not at all	1 1.1%	0 0.0%	0 0.0%	0 0.0%	2 2.2%	1 1.1%	3 3.3%
	Total	43 47.3%	3 3.3%	4 4.4%	2 2.2%	78 85.7%	1 1.1%	91 100.0%

(Field survey, 2022)

More than one-third (37.4%) of farmers who listen to the radio regularly do so in the evening (7 pm-9 pm). Almost the same proportion of farmers (36.3%) who do not listen frequently listen to the radio in the evening. As a result, regardless of frequency, more than half of those polled listen to the radio in the evening. On the other hand, farmers who listen to the radio only in the morning make up a small proportion of the research sample.

4.3.7 CROSSTABULATION OF LEVEL OF SATISFACTION AND TYPE OF AGRICULTURAL INFORMATION

Figure 4. 3 Crosstab of farmers' level of satisfaction with agricultural information received via radio and their preferred type of agricultural information



11. What type of agricultural information do you ...

On the type of agricultural information farmers require and their level of satisfaction, market prices for farm products and agrochemicals received the most responses. The majority of respondents (17%) who claimed to be very satisfied preferred information on the market price of farm products, whereas 11% of those who chose market information said they were satisfied with radio information. On the other hand, 11% of respondents who preferred agrochemical information said they were very satisfied with the information received, while 13% said they were satisfied.

A Pearson Chi-square test was run to determine the nature of the relationship between farmers' level of satisfaction with agricultural information received via radio and their preferred type of agricultural information. The results showed that there is no statistically significant association between the two variables $X=19.924$, $P=0.337$.



**4.3.8 CROSSTABULATION OF PREFERRED CHANNEL OF COMMUNICATION
AND FARMERS' LEVEL OF SATISFACTION WITH AGRICULTURAL
INFORMATION RECEIVED**

Table 4.9 Crosstab of farmers' preferred channel and their level of satisfaction

Crosstab of farmers' preferred channel and their level of satisfaction													
		Your preferred channel for receiving inf ^a											Total
		Newspaper	Television	Radio	Internet	Colleague farmers	Extension officers	Opinion Leaders	Information center	Friends and family	Personal experience	Farmers' group/association	
12. How satisfied are you with the agricultural information you received?	Very satisfied	2 .6%	16 4.5%	38 10.6%	17 4.7%	31 8.7%	15 4.2%	2 .6%	2 .6%	8 2.2%	14 3.9%	11 3.1%	156 43.6%
	Satisfied	0 0.0%	14 3.9%	28 7.8%	12 3.4%	23 6.4%	8 2.2%	1 .3%	1 .3%	9 2.5%	13 3.6%	9 2.5%	118 33.0%
	Somewhat satisfied	0 0.0%	5 1.4%	8 2.2%	6 1.7%	9 2.5%	5 1.4%	0 0.0%	1 .3%	5 1.4%	3 .8%	5 1.4%	47 13.1%
	Not satisfied	0 0.0%	4 1.1%	8 2.2%	5 1.4%	10 2.8%	1 .3%	0 0.0%	0 0.0%	4 1.1%	0 0.0%	5 1.4%	37 10.3%
Total		2 .6%	39 10.9%	82 22.9%	40 11.2%	73 20.4%	29 8.1%	3 .8%	4 1.1%	26 7.3%	30 8.4%	30 8.4%	358 100.0%

(Field survey, 2022)

The majority of farmers (22%) who preferred radio said they were somewhat satisfied with the agricultural information they received while 10.6% said they were very satisfied. This means that 40% of those who preferred radio are at the very least satisfied with the information they received. On the other hand, 8.7% and 6.4% of farmers who relied on their fellow farmers for agricultural information said they were very satisfied and satisfied, respectively. Respondents who rely on extension officers (22%) reported being satisfied, but only 4.2% reported being very satisfied.

4.4 CHALLENGES ENCOUNTERED BY FARMERS IN USING RADIO TO ACCESS AGRICULTURAL INFORMATION

According to the survey, the most common barriers farmers encounter when using radio to access agricultural information are power outages, poor radio signals in some areas and unfavourable time allocation for agricultural broadcast programs on the radio.

The lead extension officer in Ejura-Sekyedumase shared some challenges encountered in using radio to disseminate extension information to farmers in a quote below:

Using radio to disseminate extension information to farmers is beneficial because it allows for the rapid reach of a large number of farmers, but it is fraught with difficulties. For example, if we have lost personal contact with farmers, we will be unable to address some personal issues for farmers, and only farmers who own and listen to the programs can benefit from them when they are broadcast on the radio, to name a few.

4.5 CHAPTER SUMMARY

The chapter presented research findings from quantitative and qualitative instruments. The information gleaned from interviews and questionnaires was organized into themes that highlighted the research objectives as well as farmers' demographic and socioeconomic information.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.0 INTRODUCTION

This chapter discusses the research findings. The chapter also contains the conclusions on the research results and provides recommendations to enhance the role played by radio in agricultural development in Ejura-Sekyedumase.

5.1 DEMOGRAPHIC AND BACKGROUND CHARACTERISTICS OF RESPONDENTS

The present study's findings differ from those of Adekunmi and Awoyemi (2017), who identified that the majority of farmers were between the ages of 41 and 60, as the majority of respondents in this study were found to be between the ages of 26 and 50. Additionally, the study revealed that males outnumber females as the dominant participants in farming, which is consistent with the findings of Ariyo et al. (2013) and Adekunmi and Awoyemi (2017) that revealed a greater proportion of male farmers as opposed to female farmers. The data collected through interviews suggests that one potential factor contributing to this trend is the fact that many of the respondents identified as Muslim, and the religious beliefs of this group may limit women's involvement in farming to domestic activities. Furthermore, the fact that agriculture is a male-dominated occupation in Ejura-Sekyedumase explains the overwhelming male dominance. However, the fact that males work in agriculture more often than women does not negate the contributions of women to agricultural output in Ghana and across Africa. Tanzania's agricultural producers are overwhelmingly female (Mtega, 2018; Isaya et al., 2018). Other agricultural development studies, such as Fideluwuowo (2020) and Agyekum (2016),

show male dominance in the agricultural sector. According to Zakariah (2008), many African communities are male-dominated in terms of traditional resource allocation, which includes land ownership and utilization of cultivable lands.

5.2 FARMERS' EXPOSURE TO RADIO

According to Zakariah (2008), the degree to which a person relies on mass media for information determines his media exposure. People who have a high level of media exposure regularly rely on numerous sources of information. They tend to seek information with more aggression and can learn more from the media than those with little media exposure. The study indicated that the majority of farmers in Ejura-Sekyedumase heavily rely on radio for information. As a result, people with high levels of radio exposure are more likely to be early adopters of information in a social system than those with low levels of exposure (Rogers, 2003).

The findings also corroborate the research results by Mtega (2018) which revealed that the majority of farmers who used radio to access agricultural information were those who had easy access to radio sets.

5.3 FARMERS' SOURCE OF AGRICULTURAL INFORMATION

The findings indicated that farmers in Ejura-Sekyedumase most frequently and widely use radio to get agricultural information. Similarly, studies by Agyekum, (2016), Adekunmi and Awoyemi (2017) and Isaya et al. (2018) confirmed radio as the primary source of agricultural information for farmers. The data shows that the key factors influencing farmers' preference for radio as a source of agricultural information are accessibility, convenience and immediate feedback. Furthermore, the two radio stations in Ejura-Sekyedumase, Naagyei FM and Today's

radio, primarily broadcast programmes in the local language. As a result, the reliance on the radio for agricultural information can also best be explained by Chapman et al. (2003), who argued that native people mostly prefer radio programs aired in their local dialect. Concerning education, this study supports Ariyo et al. (2013), who found that radio cuts across the literacy barrier required in newspapers and journals. This means that one does not need to obtain a formal education or learn to read and write before being able to use radio effectively. It is also consistent with Zakariah (2009), who noted that the low level of newspaper readership resulted from the high rate of illiteracy.

Colleague farmers are the second most preferred channel (26.8%) for receiving agricultural information by farmers in Ejura-Sekyedumase. Colleague farmers is a form of an interpersonal medium of communication where for example, two farmers interact face-to-face. This finding corroborates Fidelugwuowo (2020), who discovered that the majority (94.9%) of farmers relied primarily on informal sources such as friends and co-farmers for agricultural information. Analysis of the findings shows that farmers preferred receiving agricultural information from their colleague farmers mostly because they believe that colleague farmers give more credible and reliable information than other communication channels.

Even though extension officers are supposed to be the link between researchers and farmers, the data indicated that extension officers were not among the top four preferred sources of agricultural information. This could mean that the extension officers are not doing their work. Furthermore, it is clear from the findings that farmers have relegated extension officers to one of the most inaccessible, inconvenient, and unreliable channels of communication in Ejura-Sekyedumase.

The analysis of the farmers' reliance on radio broadcasters in the local language, colleague farmers and to a lesser extent, extension officers for agricultural information, supports the diffusion of innovation theory's concept of heterophily and homophily. Rogers (2003) defines

homophily as “the degree to which two or more individuals who interact are similar in certain attributes” (p.36). This simply explains that people with common socio-economic characteristics like cultural beliefs, religion, language, gender and so on, can bond easily and share ideas. In this study, for example, more than half of farmers prefer getting information from colleague farmers as well as radio because of language commonality. According to Rogers (2003), “heterophily is the degree to which two or more individuals who interact are more different in certain attributes, such as beliefs, education, social status, and the like” (p.36). The study in this regard sees extension officers as highly educated and well-vested in agricultural knowledge. Consequently, farmers’ reliance on them for information confirms the concept of heterophily.

5.4 THE ROLE OF RADIO IN AGRICULTURAL DEVELOPMENT

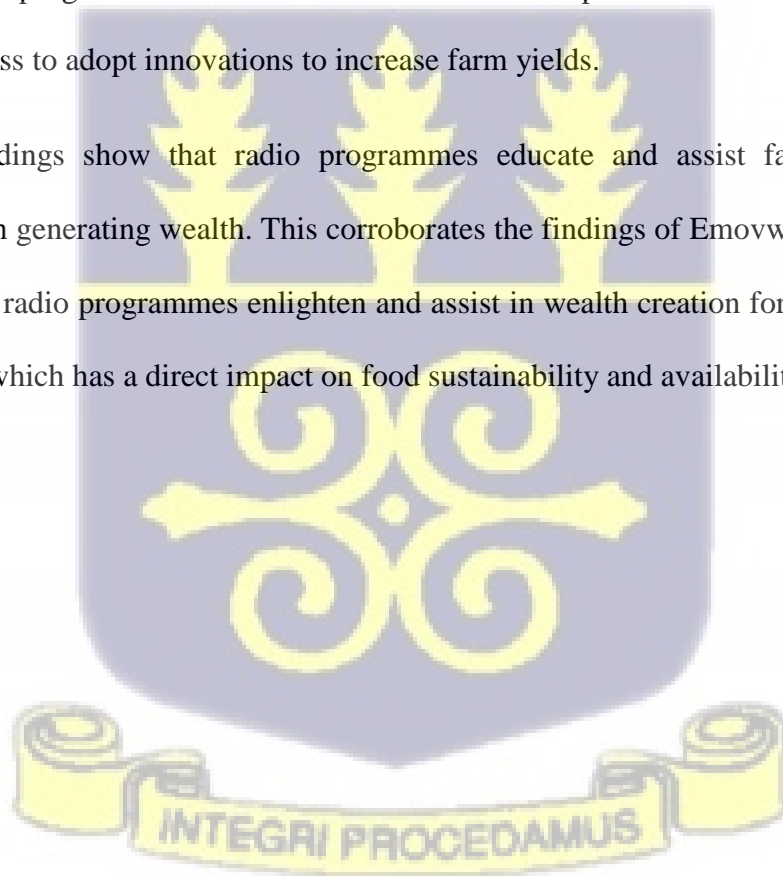
The survey clearly shows how much farmers rely on the radio for agricultural information. According to Zakariah (2008), the more one becomes reliant on a specific communication medium, the more one can learn from it. As a result, the more these farmers listen to agricultural messages on the radio, the more likely they are to adopt new technologies and practices. It is clear that the reason for the high satisfaction rate among respondents who reported radio as their primary source of information for agriculture is due to the effectiveness of utilizing this medium to disseminate relevant information. This aligns with findings from previous research, such as studies conducted by Purushothaman et al. (2003) and Khan et al. (2020), which have demonstrated that the integration of modern technologies and other innovative resources can greatly enhance agricultural productivity and economic advancement.

The findings show that farmers from Ejura-Sekyedumase benefited from agricultural broadcast programmes on radio, which is necessary for the improvement of farm yields. According to Ndilowe (2013), radio programs are beneficial for farmers, as demonstrated by a 2010

NASFAM panel discussion held with farmers who practised conservation agriculture. The panel discussion, which was aired on the radio, allowed farmers from around the country to listen and learn from the success stories of the participating farmers. The program received positive feedback from listeners and as a result, NASFAM distributed 500 radio sets to all associations to encourage group listening.

It can be deduced from the above analysis that farmers are more likely to improve their farming practises by increasing production after hearing farmer success stories and advice on improved farming practises on the radio. Against this backdrop, the response of the Akufo Mmr3 programme host on Naagyei FM suggests that the feedback received through the phone lines after agricultural programmes shows farmers' readiness to improve their farm practises as well as their eagerness to adopt innovations to increase farm yields.

Again, the findings show that radio programmes educate and assist farmers in Ejura-Sekyedumase in generating wealth. This corroborates the findings of Emovwodo (2019), who discovered that radio programmes enlighten and assist in wealth creation for people involved in agriculture, which has a direct impact on food sustainability and availability.



5.5 FARMERS' PROBLEMS WITH ACCESSING AGRICULTURAL INFORMATION THROUGH RADIO

Despite the importance of radio as an effective tool for information dissemination for sustainable development, some lingering barriers threaten farmers' access to radio-based information. According to the survey in this study, the barriers that farmers face when using radio to access agricultural information are power outages, poor radio signals in some areas and unfavourable time allocation for agricultural programmes on radio. The findings are consistent with previous research by Abubakar (2009) and Muntaqha (2007), which revealed that poor radio signals, high costs of purchasing media sources and power outages are the problems/constraints in obtaining information from media sources, particularly radio.

5.6 CONCLUSION

The purpose of the study was to assess the contribution made by radio to the advancement of agriculture in Ejura-Sekyedumase. The investigation came to the following conclusions: The research revealed that in Ejura-Sekyedumase, farmers primarily use radio and their fellow farmers to get agricultural information. The study further indicated that farmers in Ejura-Sekyedumase preferred listening to radio broadcast programmes in the evening, especially from 7 pm to 9 pm. The research also noted that the agricultural information disseminated through radio satisfies the information needs of most of the farmers in Ejura-Sekyedumase. It also discovered that the type of information needed by most farmers in Ejura-Sekyedumase is the market price of farm products and agrochemical information. The study revealed that radio programmes help farmers to generate wealth which is very important for agricultural modernization and commercial advancement. Finally, the study discovered that the main barriers that hinder farmers' access to agricultural information through radio are power outages,

poor radio signals in some areas and unfavourable time allocation for agricultural programmes on radio.

5.7 RESEARCH LIMITATION

The success of this study, like that of other academic research studies, was not without difficulties. Although both the survey and the interviews were pre-tested, and changes were made to improve the clarity of the questions, many barriers were encountered during the fieldwork, slowing down the data collection process. Some of these difficulties stem from the long travels to remote communities and the fact that the respondents were farmers and busy working on their farms, so they rarely get enough time to participate in the study.

Second, because the question was not closed, most farmers exaggerated their responses to the question about the challenges they face when using radio to access agricultural information, making data analysis more difficult. For example, a farmer claimed that he listened to the radio frequently but was not receiving any agricultural-related information, even though a radio host confirmed in an interview the regular broadcast of agricultural programmes.

5.8 RECOMMENDATIONS

Based on the research findings, the following recommendations were made:

1. Extension officers should use radio more frequently to reach out to farmers to provide them with the needed knowledge and information to increase production since farmers perceive them to be invisible within the municipality
2. The government and donor agencies should financially support agricultural radio programmes to ensure their smooth operation and long-term viability

3. Government should install new power transformers to reduce power outages within the municipality
4. Radio co-operations in the municipality should install radio antennas in strategic locations to aid in radio signal reception.



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APPENDIX A

QUESTIONNAIRE FOR FARMERS

DEPARTMENT OF COMMUNICATION STUDIES, UNIVERSITY OF GHANA

TOPIC: The role of radio in agricultural development in Ejura-Sekyedumase, Ghana

This is an academic task that is necessary for completing the requirements for obtaining an MA in Communication Studies from the University of Ghana, Legon. It is important to note that any information provided will be kept confidential and used solely for the purpose of this study. Your participation in this study is voluntary and greatly appreciated. There are no risks associated with participating in this study. As a voluntary participant, you have the option to not answer any questions you do not wish to and may withdraw from the study at any point. By answering this survey, you are giving your consent to participate in this study.

SECTION A: DEMOGRAPHIC AND BACKGROUND DATA OF RESPONDENTS

Instruction: Please, for each question under this section indicate the chosen option by ticking (✓) the most appropriate answer(s) and fill in (where applicable).

1. Gender:

- Male []
- Female []

2. Age:

- 18-25 []
- 26-35 []
- 36-50 []

- 51 years and above []

3. Level of education:

- None []
- Basic school []
- Senior High School []
- Tertiary []

SECTION B: FARMER’S PREFERRED CHANNEL OF AGRICULTURAL INFORMATION

Please tick the boxes provided.

4. Which media outlet do you frequently access?

- ❖ Television []
- ❖ Radio []
- ❖ Print media []
- ❖ Internet []
- ❖ Others (specify)

5. What is your preferred channel for receiving agricultural information?

(You can select more than one medium)

S/N	MEDIUM	TICK
1	Newspaper	
2	Television	

3	Radio	
4	Internet	
5	Colleague farmers	
6	Extension officers	
7	Opinion leaders	
8	Information centre	
9	Friends and family	
10	Farmers' group/association	
11	Others (specify)	

6. What elements influence your choice of medium or resource for agricultural information? (You can tick more than one response).

- ❖ Accessibility
- ❖ Convenience
- ❖ Cheap
- ❖ Credibility/reliability of information
- ❖ Allows for demonstration
- ❖ Immediate feedback
- ❖ Informative
- ❖ Other (specify)



SECTION C: EXPOSURE TO RADIO

Please tick the boxes provided.

7. Do you have access to a radio set?

❖ Yes []

❖ No []

8. Do you listen to the radio for agricultural news?

❖ Yes []

❖ No []

9. How frequent do you listen to radio?

❖ Very frequently

❖ Frequent

❖ Not frequent

❖ Not at all

10. When do you listen to the radio during the day? (You can tick more than one response)

Time of day	Hours	Tick
Morning	5 am – 9 am	
Late morning	10 am – 12 noon	
Afternoon	1 pm – 3 pm	
Late afternoon	4 pm – 6 pm	
Evening	7 pm – 9 pm	
Night	10 pm – 12 am	

SECTION D: THE ROLE OF RADIO IN AGRICULTURAL DEVELOPMENT

11. What type of agricultural information do you prefer listening to on the radio?

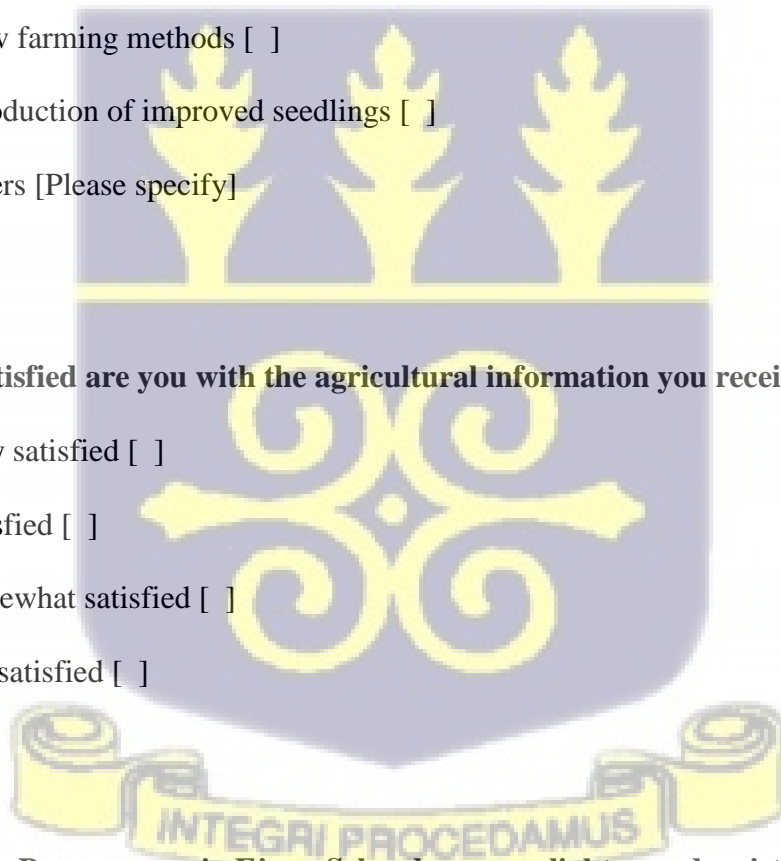
- ❖ Agrochemicals []
- ❖ Treatment and management of crop diseases []
- ❖ Treatment and management of livestock diseases []
- ❖ Soil fertility management []
- ❖ Market price of farm products []
- ❖ New farming methods []
- ❖ Introduction of improved seedlings []
- ❖ Others [Please specify]

12. How satisfied are you with the agricultural information you received?

- ❖ Very satisfied []
- ❖ Satisfied []
- ❖ Somewhat satisfied []
- ❖ Not satisfied []

13. Do radio Programmes in Ejura-Sekyedumase enlighten and assist in wealth generation for individuals working in agriculture?

- ❖ Yes []
- ❖ No []



SECTION E: CHALLENGES IN USING RADIO TO PROMOTE AGRICULTURAL DEVELOPMENT

14. What challenges do you face in using radio to receive agricultural information?

specify

specify- challenges in using radio to access agricultural information

15. What recommendations would you offer to improve the use of radio for agricultural information and innovation dissemination to increase agricultural development in Ejura-Sekyedumase?

Specify

specify-recommendations to improve the use of radio to increase agricultural development



APPENDIX B

QUESTION GUIDE FOR EXTENSION AGENTS

1. Can you describe your experience working as an extension officer in Ejura Sekyedumase and how it relates to the use of radio in agricultural development?
2. In your opinion, what are the key benefits of using radio as a communication tool for agricultural development in Ejura Sekyedumase?
3. How do you see radio as a tool for addressing challenges faced by farmers in Ejura Sekyedumase, such as lack of access to information and limited resources?
4. Can you share some examples of successful radio programs or initiatives that have been implemented in Ejura Sekyedumase to promote agricultural development?
5. In your experience, what are the most important factors for ensuring the effectiveness of radio as a tool for agricultural development in Ejura Sekyedumase?
6. What are the possible challenges of using radio in agricultural development in Ejura Sekyedumase and how can they be addressed?
7. How does the community accept radio as a medium of communication for agricultural development?



APPENDIX C

QUESTION GUIDE FOR RADIO HOSTS

1. Can you explain the significance of radio in agricultural development in Ejura Sekyedumase, Ghana?
2. How does radio impact the dissemination of information and knowledge related to agriculture in the Ejura Sekyedumase community?
3. What specific agricultural topics are commonly discussed on radio programs in Ejura Sekyedumase?
4. How have radio programs in Ejura Sekyedumase contributed to the improvement of agricultural practices and techniques in the community?
5. Can you discuss any notable success stories or case studies of farmers in Ejura Sekyedumase who have benefited from radio programs?
6. How do the local government and other organizations partner with radio stations to promote agricultural development in Ejura Sekyedumase?
7. How do you see the role of radio in agricultural development evolving in Ejura Sekyedumase in the future?
8. Are there any challenges or limitations to utilizing radio as a tool for agricultural development in Ejura Sekyedumase? If so, how can they be overcome?
9. Can you discuss any specific radio programs or initiatives that have been implemented in Ejura Sekyedumase to promote agricultural development?
10. How does the community in Ejura Sekyedumase participate and engage with radio programs related to agriculture?