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EFFECTS OF AGRICULTURAL BASED RADIO PROGRAMS ON THE ADOPTION OF INNOVATIONS BY THE FARMERS OF SARGODHA AND KHUSHAB DISTRICTS

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Abstract

The study investigates the effects of agricultural-based radio programmes on the adoption of innovations by the farmers of Sargodha and Khushab districts regarding the diffusion of innovations in the agriculture sector through different radio programmes. A detailed study was conducted on the farmers of Sargodha and Khushab districts using a sample of 300 respondents, comprising 150 farmers from Sargodha and 150 farmers from Khushab districts. The sample was selected using the triangulation method by combining stratified and purposive sampling techniques. The findings of the study revealed that the farmers who listened to the agriculture-based radio programmes adopted new farming methods as compared to those who did not tune into such programmes. The findings of the study further revealed that radio played major role in getting the respondents' minds to adopt various innovations from agriculture programmes in Sargodha and Khushab districts. On the other hand, listeners do not significantly prefer confirmation of adoption regarding innovations.

Keywords*. Radio, FM, Agriculture, Formers, Diffusion, Innovation,*

Formers, Listeners.

Introduction

The major medium that people currently consider the first choice for staying informed about events around the world and the main source of enjoyment is media. The role of media in our lives is expanding along with human stress and demands. It is now impossible to envision a world without mass media (Qvortrup, 2006). The public has to be kept informed about potential events that could take place elsewhere in the world since the world has become a global village. Since every country's finances are reliant on other countries. The mass media was crucial in quickly disseminating all of this information (Deutschmann, & Danielson, 1960). According to Shure, (2018) Tesla received two significant US radio copyrights in 1897. Tesla also employed electromagnetic receivers that were responsive as opposed to the less responsive coherers used subsequently by Marconi and other experimenters. Soon after, he started enlarging the radio isolated command system. In 1895, Marconi put together a radio system that could transmit pointers across large distances. The phenomenon that transmission collection is related to the rectangle of aerial size is known as Marconi's law and is a result of Marconi's investigations on radio waves. Radio equipment employs this process to express a physical law (Fleming, 1910). Upon its founding on August 14, 1947, Pakistan had just three radio stations. Lahore, Dhaka, and Peshawar. The other radio stations afterwards started broadcasting in Pakistan (Rahman, 2020). For the goal of enhancing and managing the personal medium, it becomes a component of PEMRA Regulation 2012. To ensure that the administration's judgments were unbiased and fair, it was initially transmitted to the data agency and afterwards to the cabinet division. The development of a Pakistan Electronic Media Regulatory Authority (PEMRA) has been ordered by the government in order to increase access to TV channels and enhance knowledge, education, and entertainment in the country through electronic media (Turner, & Tay, 2009).

An electrical instrument called radio is used as an audio medium to deliver programmes to listeners. This intermediary has a global perspective and can communicate with millions of individuals who are dispersed and live in rural regions. Radio communication has made significant inroads into rural communities due to the accessibility of inexpensive equipment that run on power or batteries (Apuke, 2017). Radio is useful for generating widespread awareness, bringing about appealing changes in mindset and helping listeners deepen their discovery. Radio performances play significant role for illiterate formers to gather information of diverse types on agriculture and other related aspects to revise

their knowledge and abilities. Another advantage of the radio is that it allows the listener to listen the programmes while carrying out other activities. All India Radio played an important role for numerous years in conveying new technological data on agriculture and other related subjects to formers for adoption (Conley, & Udry, 2010). Formers who lack literacy often use radio performances to obtain information of many kinds on agriculture and other relevant topics in order to update their skills and expertise. The ability to listen radio broadcasts while engaging in other activities is another benefit of radio. Radio has been crucial in providing information to formers on agriculture and other related topics (Brenner, 2009). In 1930, Frequency Modulation (FM) was invented, but it did not catch on until the 1960 since few radio sets could access it and few households had high-fidelity sound systems that could benefit from FM's superior sound quality (Sterling, & Keith, 2009). The majority of FM employment replicated AM roles, and the same firms that controlled AM stations owned FM. After the Frequency Control Commission (FCC) banned AM, FM started to develop more quickly. Radio listeners in America now make over half of the FM programming market. In US, there are around 7,700 FM stations. According to Nazeer, Et al., (2022), there are 1,961 non-commercial FM stations and 5,591 commercial FM stations in the USA.

FM 93 Sargodha

Radio station FM 93 Sargodha plays news and information. The Pakistan Broadcasting Corporation (PBC)'s subsidiary owns it. It covers programmes for the welfare of the populace as well as health-based education, environmental facts, community welfare, agriculture, notable individuals, women's rights, human privileges, newspaper flexibility, etc. This organization operates under the auspices of the Pakistani Government (Mezzera & Sial, 2010).

FM 96 Sargodha

The most popular radio station in Sargodha is Sunrise FM-96, which is private owned. There are masses of people that listen to it. The entity belongs to BIZ Broadcasting (Pvt) Ltd. On April 19th, 2003, BIZ Broadcast was founded to provide information through Radio FM. Operation Love Pakistan and Sunrise Pakistan Sunrise FM 97 Islamabad, Sunrise FM 96 Sargodha, Sunrise FM 96 Sahiwal, and Sunrise FM 95 Jehlum are all part of the FM Sunrise network. With unique feelings towards time, all FM Sunrise stations broadcast variety of shows continuously in Urdu, Punjabi, English, and Pashto. To keep listeners informed of current events and the situation in the motherland, FM Sunrise transmits an hourly news bulletin, talk programmes, discussion programmes, interviews, and radio accounts in addition to its wide programming. Localized talent is chosen from all four places. These are polished and shown on television in the most likely manners. These talented individuals aid in the creation of sunrise programming.

Sunrise Pakistan's administration, producers, presenters, technical, IT, and production teams work tirelessly round the clock to create better shows and the sky truly is the limit. It makes sense that FM-96 sunrise Pakistan is becoming a fixture on the local airways and serving as an influence to all the other stations.

Coverage Area of FM 96 and FM 93

Radio FM-96 Sunrise is compressed of the following cities, towns, and villages of the area: "Sargodha, Khushab, Jala, Makhdoom, Khushab Joharabad Chaks, Mid Ranjha, Sahiwal, and Shahpur Sadar-Khewra-Shahpur City-Pind Dadan Khan, Mianwalli Road, Bhalwal, Lalian, Faisalabad Road, Chanab Nagar (Rabwa), Lahore Road, Chiniot, Wegowal, KotMoman, Soonskaser, Bhagianwala, Noshera, SillawaliPandiBhatian, Quaidabad, Hafizabad, Farooqa, Shaheenabad, Jhang Road, Jhawarian, Dhrema, KhalarKhar, Bhera, Malakwal, Nehang, Bakhar".

Orientation of Radio FM 96

Commercial and entertainment-focused FM 96 is working under umbrella of BIZ Broadcasting (Pvt) Ltd which is a private owned company.

Significance of the Study

Up to 70% of Pakistan's population resides in rural regions, whereas most farming communities are concentrated in metropolitan areas (Akmal, 2021)). In rural areas where radio and agriculture are directly related, there is a constraint of the media. This is because agriculture is the primary source of income for most rural residents. The study and practice of agricultural programming focuses on the relationships between farming and related historical data. It is recommended as a subset of research relationships and is carried out formally and informally by agricultural elongation. It includes pesticides, seeds, fertilizer, and agricultural technology even though it has formed its own specialty field (Hoffmann, Et al., 2007). Non-urban radio is a two-way strategy that demands the categories to employ different perspectives from different types of resources as well as different press and information sources (Rehmani, Et al., 2018). It gives group members access to information, education, and entertainment and gives them the option to work in the media as producers, organizers, and performers. Instead of being for the group, it serves as the method of signaling. It differs from built-up radio in that it is specifically tailored to the information demands of the people of the country (Graham, & Marvin, 2002). There are several use of advanced agricultural data and methodologies encouraged by use of mass communication techniques. Radio is used for mass communication and impersonal message delivery to huge crowds. Each media has advantages of its own. Each has certain opportunities while also having specific drawbacks (Aker, 2011). The second

decade of the 20th century saw the institutionalization of extension work. Initially, there is an abundance of agricultural advice. It was conducted mostly through one-on-one interactions, and the project was limited to disseminating knowledge of ethical farming methods among growers. Agricultural workers shared this information using very basic one-to-one and assembly line communication techniques. In 1955, electronic media were first utilized in agriculture field (Ayaz, Et al., 2019).

Objective of the Study

The major goal of this study was to assess the impact of radio as a source of information and the characteristics of technology on the adoption practices of rural farmers in Distt Sargodha and Distt Khushab based on new information learned in recent years. The study's specific goals and objectives are as under:-

To establish a relationship between the availability of farming information and farmers' adoption of improvements

To establish a relationship between a technological innovation's features and farmers' adoption of a farming innovation.

Literature Review

According to Booth (2016) literature review is a body of material that aims to reconsider the important aspects of the available data. It includes both substantive results, theoretical and methodological support for a particular issue. Because book reviews are less important things, they do not discuss any experimental new work (Bembridge, 1980). Additionally, the revision of a publication may be seen as the reconsideration of an abstract accomplishment. This study's most important question was how radio agricultural programming affected Sargodha and Khushab farmers adopted innovation. The results of relevant investigations that were carried out in various nations are reviewed in the part. In Bangladeshi research, Uddin et al,. (2014) arrived to the conclusion that adoption of modern agriculture techniques was strongly related to the causes of data. Wilkining et al., (1962) found that farmers used mass media primarily as source of first-hand information about farming innovations and some sources of data are likely to be influential in acquainting formers with new practices while others succeed in supplying the most data about them.

When Bajwa (1965) looked into two rural villages in the Sialkot area, researcher found that media and information sources were most mentioned as data sources. An agenda for the interview was employed to collect the data. Only (20.5 %) of farmers, according to the study, thought that farming radio programmes were too long. It also determined that the primary means of communication for farmers were radio. In Ogun State's four farming zones, 320 formers were chosen at random from 32 towns using a multistage sample technique. To gather information direct interviews were employed. The study hypotheses were tested

using Chi-square and Pearson product immediate association. Results showed (59 %) of respondents used radio technology, whereas (7 %) used extension direct to transmit farming data (Nyamba, 2017). Formers faced challenges like illiteracy, need for money and difficulty with responsiveness. Farmers' age, sex, marital status, and usage of Wi-Fi, as well as formers' sex, education, and use of an elongation guide are significantly correlated. It was advised to meet the farmers' perceived needs, ranch broadcasts and publications should be planted alongside elongation agencies and farmers should be encouraged to listen to ranch broadcasts, read, and engage with the content of elongation direct (Pavarala, & Malik, 2007).

Radio and television are electrical gadgets, yet the department continues to use them as a key instructional tool. A crucial area that investigated how effective various media have been in achieving the year-end outcomes. Our agricultural production is much lower than that of many other nations' worldwide (Bushuk, & Rasper, 1994). The difference between the initial yield and the prospective yield of our crops is also very large. It clearly demonstrates how our current technology may considerably increase agricultural productivity. As a result, there is an urgent demand for knowledge and expertise in the sector of agriculture. Farmers in this situation require lot of information and access to technology. According to research, farmers' exposure to data is anticipated to have a substantial impact on how they behave while adopting new technologies (Palaniappan, & Annadurai, 2018). Naturally, more exposure is likely to increase sensitivity to the most recent guidelines and demonstrate to farmers how precisely apply these recommendations into their farming practices (Liu, Et al,. 2018). The extension bureaus are propagating innovative technologies through a variety of channels, including the media, in order to meet this goal. Personal, in-person elaboration techniques, which fall within the individual and group categories of innovative knowledge Books, periodicals, newspapers, and brochures, are all forms of publishing that support the maintenance of technology. Research conducted in the middle Punjab found that most farmers read brochures, periodicals, and bulletins to learn about new sugarcane-improving methods (Rehman, 2010).

It was thought to be the print newspaper that best suited the use of sugarcane production methods. It has been demonstrated that content focused on farming is an effective way to disseminate knowledge, particularly innovations (Lybbert, & Sumner, 2012). Agriculture reading is also assisting educated formers in gaining a foundational understanding. Radio is a significant source and a means of delivering timely facts. These days, TV is also a potent tool for data transformation. Radio and television, which are common electrical

appliances, are seen as effective in informing formers of the most recent information. Radio and television are two excellent connections for promoting growth. A research conducted in the central Punjab revealed that more than (56 %) of formers listened to and watched agricultural shows on radio and television (Bakengi, 2011).

Theoretical framework/Diffusion of innovation theory (doi)

To find out effects of agriculturally founded radio programmes on the adoption of innovations by the farmers of Sargodha and Khushab districts, this study was conducted. Radio has a very high level of acceptance as a tool for social contact. It is widely employed in Pakistan's rural and farming humankind areas (Salik, 2021). The high and upper-middle classes of Pakistan are no longer the only listeners of radio as they once were. Radio rapidly spreads in Pakistan's rural regions because to its low cost and ease of communication. In farming communities, it has grown to be one of the most extensively used household items (Rehman, 2010). The concept tracks in Diffusion of Innovations (DoI) aid in understanding how, why, and how quickly new ideas and skills spread throughout civilizations. The concept was made well known by Everett Watkins Rogers a nation sociology expert in his 1962 book Diffusion of Enhancements. The process by which a discovery is disseminated throughout the components of a public plan is known as diffusion. The resources used to spread inventions are diverse and come from a variety of professions. According to Rogers (1962) the diffusion of a novel concept uses four key components. The finding, interaction paragraphs, time, and a public strategy. This process depends largely on human resources.

The improvement in self-sustainability must be universally adopted. There is a limit to how much adoption can be made before advancement becomes significant. Innovation diffusion manifests itself in many ways across cultures and regions and is highly dependent on the types of adopters and innovation-decision methods. The rate at which components of a public plan move relative to each other is referred to as adoption. The amount of energy and effort necessary for a specific number of components in a public system to advance is typically used to compute rates. Your upper-class categorization identifies the rates of innovation uptake (Boehmke, 2009). People who embrace advancement early typically need less time to adapt than people who adopt advancement later. As adoption increases, progress reaches a critical point at a difficulty. The quantity of individual adopters assures that the adoption of the improvement is self-sustaining because this problem arises inside the bend quickly enough. Rogers summarizes a number of methods that may be used to assist development in reaching this critical stage while demonstrating how it gets there. A very well-

known person implementing an innovation one at a time within an online community, becoming prenatal with and naturally desiring an exact idea, treating an idea to a group of people who would easily use said skills and providing positive feedback and benefits for early adopters of an innovation are all examples of strategies to increase diffusion.

The Study's Major Concepts and Conceptualization Conceptualization

A person's thoughts are opened up by a cautious, meticulous exposition of a concept. It Much refers to theoretical assertions of ideas. When conceptualizing a problem, the person defines and formulates the issue in their own words.

Concepts

A notion is a generalized idea that is established subjectively. Concepts are only descriptions or views of the mind. It is impossible to comprehend and closely examine anything, such a piece of wood or a tool.

Main Concepts of Research Study

Only psychological descriptions or sensations may be called concepts. This is how all of the study's topics are presented, along with how they are conceptualized and operationalized.

The Study's Major Concepts and Conceptualization

An abstract idea that is created by generalization is called a concept. Concepts are only descriptions and views of the mind. Perhaps, unlike a piece of wood or a tool, it cannot be immediately witnessed. A careful, systematic explanation of a concept clarifies a person's thinking. It much refers to theoretical assertions of other ideas. In conceptualization, one formulates and describes a few issues on their own terms.

Radio

Rural radio represents a two-way strategy that involves the sharing of viewpoints from many causes and the media format employed by the organizations. It offers chance for the community actively participates in the media as creators, producers, and performers and it enables the members of a group of people to interact with information, learning, and entertainment.

Time spent on Consumption of Agricultural Programmes

It refers to the amount of time listeners spend each week listing radio agricultural programmes.

Attention

Conceptually, it refers to the extent to which farmers pay attention to agricultural programmes presented on the radio.

Purpose of use

It is conceptualized that for what purpose listeners usually prefer to listen to radio agricultural programmes.

Information about New Agricultural Innovations

It is conceptualized that listeners get a lot of information about new agricultural technologies from radio.

Adoption of New Agricultural Innovations

It is conceptualized to what extent radio agricultural programmes provide help in adopting new agricultural technologies.

Information about the Technologies

It is conceptually important how much information you get from the radio agriculture programmes about new technologies, seeds, laser leveling, pesticides and irrigation.

Effects of the Radio Agricultural Programmes

It is conceptualized that how much farmers are satisfied with radio agriculture programmes affects their adoption of new technologies, seeds, lasers, pesticides and irrigation.

Effects of Radio Agricultural Programmes

It is conceptually unclear how much radio agriculture programmes are affecting farming agriculture patterns.

New Agricultural-Practices

It is conceptualized to what extent farmers practice which are presented in radio agriculture programmes.

New Agricultural-Adoption

It is unclear conceptually to what extent farmers use radio for the adoption of new agricultural innovations.

Study's Hypotheses

A hypothesis is a statement that predicts something based on the relationship between two or more variables. A claim is made in words that can be tested and makes predictions. The following hypotheses are included in the study of the overall strategy.

The more exposure to radio shows about agriculture, the more farmers embrace new agricultural advances

The more exposure to radio, the greater the influence on Khushab and Sargodha. Former listeners are more likely to pay attention to radio agricultural broadcasts than other programmes, and

Farmers are more likely to learn about new agricultural technologies via radio agricultural programmes.

Research Methodology

Logical progression of a study is known as research methodology. Research plan explains the relationship between the study's objectives and the research methodology. In this manner, survey research has been carried out to gather

information from the farmers of Sargodha and Khushab while keeping in mind the requirement of the study.

Reliability Statistics	
Cranach's Alpha	*N of Items*
.869	*87*

Data Collection

Following the requirement for the farmers' demographic traits and the mental toughness of their subgroups, the primary two groups were selected using stratified sampling, and the purposive approach was employed for data collection. For gathering data, interview the respondents. To establish a standard for asking questions and documenting answers, every inquiry was uniform. The final questionnaire underwent several revisions using the face-to-face technique. Following the completion of these procedures, 150 farmers from Sargodha and 150 farmers from Khushab were systematically selected and questioned and determine.

Survey Research

According to Neuman (2007) qualitative social research is any study in which the same questions are systematically posed to a large number of individuals, who are subsequently recorded and their responses are analyzed. According to Reinard (1994) survey is a procedure that involves taking a comprehensive look at something. Researchers examine the attitudes and actions of those who choose to follow this path. Surveys are increasingly employed in many facets of life (Wimmer, and Dominick, 2006). Surveys are used by businesses, consumer advocacy organizations, politicians, and advertising in daily decision-making. According to Babbie (1992), surveys can be used for exploratory, explanatory, and descriptive objectives. They are primarily employed in investigations where the analytical units are humans. According to the same author it is one of the greatest methods for researchers to get data from a sizable population because direct monitoring is impractical. The farmers in Sargodha and Khushab to see how radio agricultural programming affected the adoption of new technologies carried out this research study. Survey technique is the best way for analyzing the impact of radio agricultural programming on the adoption of innovations by the farmers of Sargodha and Khushab given the nature of the study.

Unit of Analysis

The selection of the group or the area of analysis is a crucial component of a research methodology. According to Baxter, & Babbie, (2003) the individuals or

objects whose qualities community researchers examine, explain, and put into plain language are the units of analysis. The sort of experimental unit that researchers choose and measure in study is referred to the unit of analysis (Neuman, 1996). 300 farmers from the Sargodha and Khushab districts are used as unit of analyses in this research study.

Population

The population is referred to as the universe of events from which the sample is drawn. Researcher selects a sample, which is typically expressed in theoretical terms. Farmers from the Sargodha and Khushab districts will take part in this research. Finding the group of people to examine the unit of analysis is the first stage in the research process.

Sample

Every researcher seeks to understand the entire population as a solid foundation for their findings and research methodology. However, for someone who wishes to do study, the facts are highly complex, therefore researchers move through with the sample technique. Sample is a portion of the entire population that possesses the same level of individuality as the entire population. According to Neuman (2007), a researcher selects a smaller set of cases from a larger pool and generalizes to the population. A sample is a unique subset of a population that is studied in order to draw conclusions about the characteristics of the full population (Babbie, 1992). Sampling involves selecting events from a population because researchers rely on a portion of all data to measure the responses, claims Reinard (1994). Since the complete organism cannot seen, the sample provides an approximated measurement of its body size. There are primarily two forms of sampling.

It must be chosen in accordance with a mathematical procedure, and the likelihood of selecting each unit is known.

It refers to the propensity or possibility that an event happens in a population

Lack of probability

This sample is only a collection of individuals picked for examination. The rules of mathematical probability are not adhered. This kind is also known as a convenience technique.

Sampling Methods

Stratified and Purposive sampling techniques were employed in this research. For choosing survey participants, a sampling technique that divides a population into smaller groups known as strata is used. Variety of non-probability sampling strategies is included under the heading of purpose sampling. It sometimes referred to as judgmental, selective, or subjective sampling, depends on the researcher's judgment when choosing the units that will be researched. Then, depending on a predetermined percentage, judgment is employed to choose the

subjects or units from each division.

Sample Size

For survey research, 300 respondents are chosen from the rural communities of Khushab and Sargodha using a stratified sampling method. 150 people from the districts of Khushab and Sargodha will be included in the sample.

Data Reduction

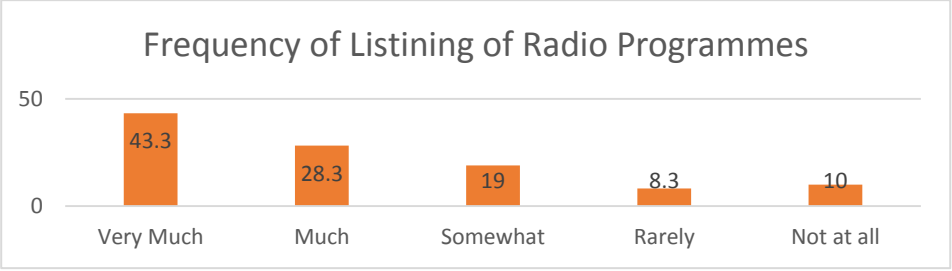
A significant amount of data has been gathered for scientific investigation. Following compilation, the data was examined; code numbers make up the data for computer tests. Answers were converted from words and sentences into numbers and codes, which were then saved in the computer. After doing this, the next stage was to focus on statistical methods for deriving conclusions of results. Because of this, SPSS software was employed to make conclusions of results.

Data Presentation

In order to make the data more intelligible, it is presented using invariant frequency in the form of tables and graphs along with explanations.

Findings

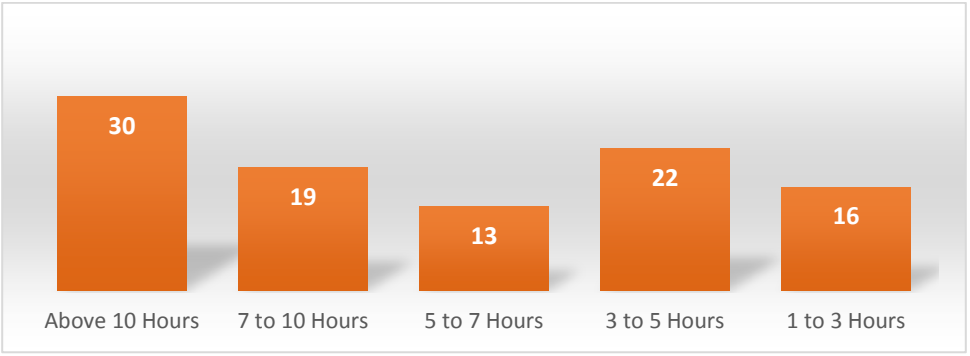
In the districts of Sargodha and Khushab, radio agricultural shows play a key role in educating a huge number of people about agriculture innovations. The findings of this study investigate radio agricultural programmes listening patterns and their impact on farming practices. Radio-based agriculture broadcasts are listened to practically everywhere in Sargodha and Khushab due to their low cost and ease of accessibility. Below tables and graphs are used to illustrate the descriptive analysis in percentages.



Above figure (4.1) reveals the results of frequency of listeners who are listening radio programmes. Radio broadcasts are particularly popular among listeners up to the age of 40. An analysis reveals that (34.3 %) respondents very much listeners of FM radio programmes. Additionally, it can be deduced from the results that (28.3%) respondents much prefer to listen to agricultural based programming for their knowledge on radio innovation. While a similar pattern can be seen in the respondents' listening replies, (19.3 %) of respondents say they somewhat listen to radio programmes on agriculture, while (8.3 %) say that they rarely listen radio agriculture programmes. (10 %) of farmers, according to this

graph data, never listen to the radio for whatever reason.

Time Spending on Agriculture-Programs



Above picture (4.2) reveals the results of time spending of formers of Sargodha and Khushab for agriculture-based programmes on FM radio during a week. According to an analysis of the time spent listening to radio agriculture programmes by all respondents, a sizable majority of respondents (30 %) listen to these programmes for more than 10 hours each week, followed by (19 %) of respondents who listen to these programmes for 7 to 10 hours each week. Just (13 %) of those surveyed listen for 5-7 hours a week. According to the graph presentation, (22 %) of respondents said they listen to the radio for 3-5 hours each week. This graph also shows that most farmers (16 %) listen to the radio agricultural programmes for more than 1-3 hours per week.

Listening frequencies for radio programmes (Table 4.1)

Description	*Location*	
Agriculture	*Sargodha*	*Khushab*
Very Much	*43.7*	*28.3*
Much	*22.6*	*31*
Somewhat	*14.7*	*19.7*
Rarely	*11*	*14.7*
Not at all	*8*	*6.3*
Total	*100*	*100*
Entertainment	*Sargodha*	*Khushab*
Very Much	*32*	*15*
Much	*16*	*24*
Somewhat	*13*	*19*
Rarely	*22*	*26*
Not at all	*17*	*16*
Total	*100*	*100*
***Values (%) N=300*	*Show*	*Invalid* *Percentage*

The outcomes of the researcher's study question are shown in the table (4.1) above. The findings of the study demonstrate how much agriculture and entertainment programmes are broadcast on Khushab and Sargodha's FM radio stations. Formers from the Sargodha area are paying more attention to the agriculture programme category than formers from Khushab. According to the results, former of Sargodha residents listen to agricultural programmes very much (43.7%), followed by former Khushab residents who listen to agricultural programmes much (22.6%) and former of Khushab residents who listen to agricultural programmes somewhat (19.7%). Consequently it is shown that Sargodha formers are more interested in agricultural programmes than Khushab formers. Another answer category for entertainment programmes of FM radio shows a slight variation in how formers from Khushab and Sargodha use the radio. (32%) of Sargodha formers listen to entertainment shows extremely regularly, followed by (16%) formers of Khushab who listen to entertainment programmes much and (13%) formers who responded in a moderately positive way. Although a small portion of Khushab population (15%) formers listen to entertainment programming very much followed by (24%) as much and (19%) as somewhat appreciative of those programmes broadcast on Khushab and Sargodha's FM stations. Only small number of (16 %) respondents answered that they did not pay attention to entertainment programmes of FM radio broadcast.

News	*Sargodha*	*Khushab*
Very Much	*31*	*26*
Much	*23.7*	*16*
Somewhat	*23*	*19*
Rarely	*11.3*	*26*
Not at all	*11*	*13*
Total	*100*	*100*
Sports	*Sargodha*	*Khushab*
Very Much	*25*	*14.7*
Much	*16*	*21.3*
Somewhat	*25*	*30*
Rarely	*16*	*15*
Not at all	*18*	*19*
Total	*100*	*100*
*** Values show invalid percentage (%) n=300*		

The findings of the demographic analysis of former residents of Khushab and Sargodha are shown in (Table 4.2) above. Formers are questioned about their

intentions towards the news and sports segments of radio broadcasts in the above table. The data in this table reveals that (31 %) former residents of Sargodha pay extremely close attention to news, followed by (23.7%) respondents who listen to news items very regularly and (23 %) as slightly listeners. On the other hand, it is seen that (16 %) former of Khushab formers pay attention to news stories much more much than (26 %) former Khushab formers and (19 %) former Khushab formers from a chosen population of Khushab formers pay attention to news stories on FM radio programmes. A small percentage of former Sargodha residents (11.3%), non-listeners to radio news (11%) and former Khushab residents (26%), who pay close attention to news stories played on radio FM news bulletins, do not listen to radio news at all. In the sports arena, the findings vary a little bit. Here, empirical findings demonstrate that Sargodha formers pay more attention to sports programming than do Khushab formers. Former residents of Sargodha pay very much attention to sport programmes (25 %) than from Khushab formers (14.7%). However, former Sargodha residents (16%) pay attention more regularly than former Khushab residents (21.3 %), who are followed by former Sargodha residents (25 %) who listen to some sports programming and former of Khushab residents (30 %) who also listen to some sports programming.

Demographic wise Listening Frequencies for Radio Programmes (Table 4.3)

Agriculture Programs	Over All	Age		Education		
		Up to 40 Years	More than 40	Primary	Matric	More than Metric
Very Much	34	13	13	17	10	7
Much	25	11	18	9	13	3
Somewhat	16	5	9	6	6	4
Rarely	12	16	3	10	2	0
Not at all	13	5	7	0	7	6
Total	100	50	50	42	38	20
Entertainment	Over All	Up to 40 Years	More than 40	Primary	Matric	More than Metric
Very Much	27	6	15.7	12	10	5
Much	13	9	12.3	8	2	3
Somewhat	24	7	9	9	6	9
Rarely	18	12	5	5	11	2
Not at all	16	16	8	8	9	1
Total	100	50	50	42	38	20

*** Values show invalid percentage* *(%) n=300*

The (Table 4.3) above shows the basic visual features of how FM radio programmes from Khushab and Sargodha are used. Overall findings show that (34%) former residents of Sargodha and Khushab pay very close attention to agriculture-related programmes broadcast by FM stations, followed by (25%) the general population who pay close attention to agricultural-related programmes and (16 %) who pay only a little attention to agricultural contents. Although previous residents of both districts (12 %) pay little attention to agricultural projects, followed by (13 %) who pay none at all. Two categories are utilized to analyses the age response group. These age ranges are for those under 40 and above 40-age category. Results show that respondents over 40 years of age pay very close attention to agricultural programmes on regular basis. As opposed to education formers above the matric level those in the second category of education gave agriculturally focused programming lot of emphasis. The aforementioned table shows the demographic findings of radio programming broadcast for enjoyment that FM listener in Khushab and Sargodha. According to the overall results formers (27 %) pay very much attention to entertainment programming, followed by respondents (13 %) and (24 %) who said that they somewhat pay attention to radio-based amusement programmes. Twenty percent of respondents said they just occasionally watch entertainment shows, while sixteen percent said they never watch them. In the over-40 year response category, the numbers are very low (6 %) pay very much attention, followed by (9 %) as very much attention and (7 %) who paid somewhat attention to radio-based entertainment programmes. In the under-40 year response category, the numbers are very high (15.7 %) pay very much attention, followed by (12.3 %) respondents of that age group who pay very much attention. In comparison to individuals whose education levels are above matric, elementary and up to matric level formers are paying far more attention to radio-based entertainment shows.

Demographic wise Listening Frequencies for Radio Programmes (Table 4.4)

N		*Up*	*Mo*	*P*	*I*	*More*
V		*13*	*18*	*1*	*1*	*8*
M		*6*	*5*	*4*	*4*	*3*
S		*7*	*7*	*7*	*1*	*0*
R		*11*	*15*	*9*	*1*	*6*
N		*13*	*5*	*1*	*4*	*3*
T		*50*	*50*	*4*	*3*	*20*
S		*Up*	*Mo*	*P*	*I*	*More*
V		*10*	*7*	*8*	*1*	*2*

M		11	13	1		5
S		13	8	1		6
R		6	15	1		4
N		10	7	2		3
T		50	50	4		20
**		Values	show	invalid		percentage

The aforementioned table shows the demographic findings for FM radio stations news and sports programming. Overall findings show that former residents of Khushab and Sargodha (31 %) listen to news material extremely regularly followed by (11 %) general respondents who much listen to news information. However, regarding the news content of FM transmission (14%) replied as somewhat (26%) as rarely and (18%) as not at all. In the age group up to 40 years old, (13%) said they listened to radio news bulletins regularly, followed by (6%) who paid close attention and (11%) who answered as much. Despite being in the over-40 age group 18% of respondents overall said they listen to radio news items very regularly (5 %) said they do so occasionally and (7 %) said they do so moderately. In the education response category primary and matric students from Khushab and Sargodha paid substantially more attention to news items than formers from populations above matric. In the field of sports contents, the majority of respondents (17 %) indicated that they like listening to sports material on FM very regularly, followed by (24 %) respondents who indicated that they do so relatively much. Overall, (21 %) respondents from Sargodha and Khushab said they seldom listened to sports programming, while (17 %) said they never listened to sports programming on FM stations. When asked how much they listen to sports material, respondents overall (10 %) said they do it extremely regularly followed by (11 %) who said they do so very much and (13 %) who said they do so relatively much. However, among respondents over 40 years old just (7 %) reported using sports content very regularly while (13 %) reported listening to sports content on FM radio stations very much. Primary and matric level respondents in the education response group are more satisfied with sports-related material than those with education above matric level.

Statistical Analysis

Statistics is the study of data collection, organizing, analysis, justification, and presentation. It is compatible with all of these viewpoints, as well as strategies for data collecting (Dodge, 2003). Making judgments and interpreting statistical data are both aided by statistics. With the use of statistics it is easy to determine the exact locations of many complex occurrences. There are two types of statistics: parametric and non-parametric. The parametric statistics technique known as

ANOVA. Karl Pearson (Pearson, 1907) originally analyzed the ANOVA test distribution's features in 1900. According to Mamahlodi (2006), this technique is used to demonstrate if the observed frequency distribution differs from the expected frequency distribution. The ANOVA test is unquestionably the most significant and widely used statistical test in the parametric family. When comparing an actual sample to another assumed or known distribution such as one that may be predicted by chance or probability ANOVA is used to see if the real sample varies from the other. This test may also used to determine the differences between two or more actual samples (Plackett, 1983). In mass media research the degree of probability is commonly set at 01 to 05 meaning that one or five times out of every 100 significant findings of a research study happen by chance or random error. The researchers established 05 (p.05) probability values for this inquiry. It implies that there is a 5% chance that the researcher will make the wrong decision.

ANOVA						
		Sum of Squares	f	Mean Square	F	Sig.
acquiring agricultural information regarding adoption of new agricultural innovation	Between Groups	22.413		22.413	17.518	027
	Within Groups	381.267	98	1.279		
	Total	403.680	99			
ANOVA						
		Sum of Squares	f	Mean Square	F	Sig.
motivation regarding adoption of new agr-innovation	Between Groups	20.280		20.280	19.711	001
	Within Groups	306.600	98	1.029		
	Total	326.880	99			
ANOVA						
		Sum of Squares	f	Mean Square	F	Sig.
decision about adopting new	Between Groups	38.163		38.163	4.697	56

innovation	*Within Groups*	*327.767*	*298*	*1.100*		
	Total	*365.930*	*299*			

Summary and Discussion

This study has made sustained efforts to investigate the effects of agricultural radio programming on farmers in the districts of Sargodha and Khushab. It was shown that the majority of respondents enjoyed listening to radio programmes about agriculture. This indicates the radio's enormous impact on farmer knowledge and innovative decision-making. Radio is a very popular kind of media in these places. This sparked a debate over the effect of radio agricultural shows on farmers' information. The primary objective of the study was to ascertain how farmer information practices and the adoption of innovative farming practices in the districts of Sargodha. Consequently, the study monitors the respondents' radio listening patterns and assesses their level of interest in programming about agriculture. Based on the findings of earlier pertinent research, the researcher has arrived to the conclusion that radio agricultural programming has some direct or indirect impact on the farmer's information and adoption of innovation. Therefore, the goal of this study was to ascertain if and to what extent the farmers in Sargodha and Khushab were impacted by the FM radio agricultural broadcasts. Data analysis revealed that respondents preferred listening to radio broadcasts on agriculture.

The findings fully supported the theory that radio agriculture broadcasts had a higher chance of grabbing listeners' attention than other programming. After analyzing the empirical data, it was determined that radio agriculture broadcasts had a considerable impact on the agricultural practices and inventions of rural listening farmers. According to critical analysis of the study's observed empirical data, radio agricultural programming has significant impact on farmers' practices in different ways based on their age, location, and level of education. The observed statistics clearly showed that the majority of respondents were in favor of new agricultural discoveries, new information, and utilizing new technologies. The majority of respondents' responses revealed that they valued the technological demonstrations on radio. In an effort to address some of the concerns raised earlier in the study, the researcher found that the majority of farmers relied on FM radio agricultural programmes for information, entertainment, news and sports. Additionally, it was shown that various listeners had distinct listening preferences for agricultural radio programmes. The descriptive analysis of the study concentrates on the respondents' age, place of residence, and level of education and aims to determine how these variables affects the listeners of radio-based farm programmes.

Suggestions and Recommendations

This study has looked at a variety of factors and how they affect rural areas generally. It has also identified the specific effects of listening to radio programmes with an agricultural theme, particularly on listeners in rural regions, and developed a baseline for these effects. These research sides and facets need to be further studied. The researcher however, wants to keep looking into and assessing the effects of rural areas with varied demographics and origins in the future. This data is essential for estimating the effects on people with different assets and demographics, such as annual income, their education level and age of farmers. It is feasible to study how radio agricultural programmes affect listeners in Pakistan's rural Sargodha and Khushab in terms of knowledge transformation. The rural Pakistani districts of Khushab and Sargodha are the subject of the current study. It should be investigated in different regions of the country. Impact of agricultural radio programming in this direction. It is essential to do more research that considers ever-more-reliable data in order to spread the findings of this study. Examining how radio has influenced media innovation, agricultural information, and changes in rural communities' farming practices is crucial. Farmers should look towards cutting-edge techniques to enhance the benefits of their land. In areas of the country without access to the media or information networks, the impact of listening and implementing new agricultural ideas from radio agriculture programmes should be felt most keenly. Because of their large viewership, radio shows have grown in popularity. It is critical to ascertain whether Pakistani radio is equally reliable. Radio farm programmes and whether radio meets the informational needs of listeners are relevant in this context.

The role of FM radio agriculture based programmes in Pakistan should be thoroughly investigated.

A survey might be conducted to learn how listeners feel about radio's role in the agricultural sector.

An effective research method for assessing the aforementioned radio programmes is a content analysis and it should be broader investigated.

To investigate how listeners' perceptions alter over time and across numerous broadcasts, a longitudinal study may be conducted.

References

1. *Aggarwal, V. B., & Gupta, V. S. (2001). Handbook of journalism and mass communication. Concept Publishing Company.*
2. *Aker, J. C. (2011). Dial "A" for agriculture: a review of information and communication technologies for agricultural extension in developing countries. Agricultural economics, 42(6), 631-647.*
3. *Akmal, N. (2021). Information Communication Technology (ICT) and Livelihood Improvement in Rural Pakistan: A Comparative Study of Small-and Large-Holder Citrus Farming Households in the Sargodha District (Doctoral dissertation, University of Canberra).*
4. *Apuke, O. D. (2017). Introduction to radio production. Introduction to Radio Production (2017).*
5. *Ayaz, M., Ammad-Uddin, M., Sharif, Z., Mansour, A., & Aggoune, E. H. M. (2019). Internet-of-Things (IoT)-based smart agriculture: Toward making the fields talk. IEEE access, 7, 129551-129583.*
6. *Babbie, E. R. (2020). The practice of social research. Cengage AU.*
7. *Bajwa, F. S. (1965). Kuka Movement: An Important Phase in Punjab's Role in India's Struggle for Freedom. Motilal Banarsidass.*
8. *Bakengi, J. P. (2011). Effectiveness of agricultural extension agents in delivering agricultural information and services to peri-urban farmers in Temeke Municipality, Dar Es Salaam Region (Doctoral dissertation, Sokoine University of Agriculture.).*
9. *Bakengi, J. P. (2011). Effectiveness of agricultural extension agents in delivering agricultural information and services to peri-urban farmers in Temeke Municipality, Dar Es Salaam Region (Doctoral dissertation, Sokoine University of Agriculture.).*
10. *Baxter, L. A., & Babbie, E. R. (2003). The basics of communication research. Cengage Learning.*
11. *Bembridge, T. J. (1980). Agricultural extension. The key to rural development in the present and former Homelands. An inaugural lecture given in the University of Fort Hare on the 17th August 1978. Fort Hare University Press.*
12. *Boehmke, F. J. (2009). Approaches to modeling the adoption and diffusion of policies with multiple components. State Politics & Policy Quarterly, 9(2), 229-252.*
13. *Booth, A. (2016). Searching for qualitative research for inclusion in systematic reviews: a structured methodological review. Systematic reviews, 5(1), 1-23.*
14. *Brenner, P. (2009, May). Tesla against Marconi: The dispute for the radio patent paternity. In IEEE EUROCON 2009 (pp. 1035-1042).*

IEEE.

15. *Bushuk, W., & Rasper, V. F. (Eds.). (1994). Wheat: production, properties and quality. Springer Science & Business Media.*
16. *Conley, T. G., & Udry, C. R. (2010). Learning about a new technology: Pineapple in Ghana. American economic review, 100(1), 35-69.*
17. *Deutschmann, P. J., & Danielson, W. A. (1960). Diffusion of knowledge of the major news story. Journalism quarterly, 37(3), 345-355.*
18. *Fleming, J. A. (1910). The principles of electric wave telegraphy. New York.*
19. *Graham, S., & Marvin, S. (2002). Telecommunications and the city: Electronic spaces, urban places. Routledge.*
20. *Hoffmann, V., Probst, K., & Christinck, A. (2007). Farmers and researchers: How can collaborative advantages be created in participatory research and technology development?. Agriculture and human values, 24, 355-368.*
21. *Jan, M. (2006). MESSAGE CONSUMPTION AND ADOPTION OF AGRICULTURAL INNOVATIONS IN NWFP. PAKISTAN (Doctoral dissertation, UNIVERSITY OF THE PUNJAB, LAHORE, PAKISTAN).*
22. *Karim, S., Saeed, K., Rana, M. H., Mubbashar, M. H., & Jenkins, R. (2004). Pakistan mental health country profile. International Review of Psychiatry, 16(1-2), 83-92.*
23. *Liu, T., Bruins, R. J., & Heberling, M. T. (2018). Factors influencing farmers' adoption of best management practices: A review and synthesis. Sustainability, 10(2), 432.*
24. *Lybbert, T. J., & Sumner, D. A. (2012). Agricultural technologies for climate change in developing countries: Policy options for innovation and technology diffusion. Food policy, 37(1), 114-123.*
25. *Mamahlodi, M. (2006). What is the chi-square statistic. Connexions.*
26. *Mezzera, M., & Sial, S. (2010). Media and Governance in Pakistan: A controversial yet essential relationship. Initiative for Peace Building.*
27. *Nazeer, A., Nasir, T., & Fizzah, S. Z. E. (2022). An Analysis of Audience Perceptions of the Music Programs by FM Radio Dilber: A Case Study of Swabi and Charsadda. Global Multimedia Review, V (I), 47-63.*

28. Neuman, B. (1996). The Neuman systems model in research and practice. Nursing Science Quarterly, 9(2), 67-70.
29. Neuman, W. L. (2007). Basics of social research.
30. Nyamba, S. Y. (2017). The use of mobile phones in communicating agricultural information in Tanzania: The roles of different stakeholders (Doctoral dissertation, Sokoine University of Agriculture).
31. Oyekunle, O. (2010). A comparative study of farmers' use of Extension guide/bulletin and radio as Media of agricultural information and technology transfer in Ogun State, Nigeria. Journal of Humanities, Social Science and Creative Arts, 5(1), 91-100.
32. Palaniappan, S. P., & Annadurai, K. (2018). Organic farming theory & practice. Scientific publishers.
33. Pavarala, V., & Malik, K. K. (2007). Other voices: The struggle for community radio in India. SAGE Publications India.
34. Pearson, K. (1907). On further methods of determining correlation (Vol. 16). Dulau and Company.
35. Plackett, R. L. (1983). Karl Pearson and the chi-squared test. International statistical review/revue internationale de statistique, 59-72.
36. Qvortrup, L. (2006). Understanding new digital media: Medium theory or complexity theory?. European journal of communication, 21(3), 345-356.
37. Rahman, A. (2020). Not public service broadcaster but public service roles: A political history of state-broadcasting in Bangladesh. Interactions: Studies in Communication & Culture, 11(2), 207-225.
38. Rehman, F. (2010). Development of a strategy to enhance the role of print media in the dissemination of agricultural information among farmers in the Punjab, Pakistan.
39. Rehman, F. (2010). Development of a strategy to enhance the role of print media in the dissemination of agricultural information among farmers in the Punjab, Pakistan.
40. Rehmani, M. H., Reisslein, M., Rachedi, A., Erol-Kantarci, M., & Radenkovic, M. (2018). Integrating renewable energy resources into the smart grid: Recent developments in information and communication technologies. IEEE Transactions on Industrial Informatics, 14(7), 2814-2825.
41. Reinard, T., Sprunck, S., Altherr, S., & Jacobsen, H. J. (1994). Biochemical properties of a novel cell wall protein associated with

elongation growth in higher plants. Journal of experimental botany, 45(11), 1593-1601.

42. *Rogers, E. M. (1976). Communication and development: The passing of the dominant paradigm. Communication research, 3(2), 213-240.*
43. *Salik, M. H., Tanwir, F., Saboor, A., Akram, M. B., Anjum, F., Mehdi, M., ... & Asghar, K. (2021). ROLE OF RADIO COMMUNICATION AND ADOPTION OF MODERN AGRICULTURAL TECHNOLOGY: A STUDY OF FARMERS IN DISTRICT JHANG, PUNJAB-PAKISTAN. Pakistan Journal of Agricultural Sciences, 58(2).*
44. *Shure, C. (2018). Brain Waves, A Cultural History: Oscillations of Neuroscience, Technology, Telepathy, and Transcendence. Columbia University.*
45. *Sterling, C. H., & Keith, M. C. (2009). Sounds of change: A history of FM broadcasting in America. Univ of North Carolina Press.*
46. *Turner, G., & Tay, J. (Eds.). (2009). Television studies after TV: Understanding television in the post-broadcast era. Routledge.*
47. *Uddin, M. N., Bokelmann, W., & Entsminger, J. S. (2014). Factors affecting farmers' adaptation strategies to environmental degradation and climate change effects: A farm level study in Bangladesh. Climate, 2(4), 223-241.*
48. *Ullah, A., Khan, S. F., & Khan, A. U. (2022). IMPACTS OF PRESIDENTIAL ELECTIONS OF 1965 ON THE HISTORY OF PAKISTAN. PalArch's Journal of Archaeology of Egypt/Egyptology, 19(3), 405-423.*
49. *Wilkening, E. A. (1962). The communication of ideas on innovation in agriculture. EDRS PRICE DESCRIPTORS, 38.*
50. *Wimmer, R. D., & Dominick, J. R. (2013). Mass media research. Cengage learning.*