J Bangladesh Agril Univ 23(3): 366–376, 2025 https://doi.org/10.3329/jbau.v23i3.84456

ISSN 1810-3030 (Print) 2408-8684 (Online)

Journal of Bangladesh Agricultural University

Journal home page: http://baures.bau.edu.bd/jbau

Research Article

Farmers' Use of Agricultural Information and Influencing Factors: The Case of a Selected Community Radio Station in Coastal Bangladesh

Md. Mamun ur Rashid✉ **and Farzana Yesmin Liza**

Department of Agricultural Extension and Rural Development, Patuakhali Science and Technology University, Dumki, Patuakhali-8602, Bangladesh

ARTICLE INFO

Article history
Received: 06 April 2025
Accepted: 18 September 2025
Published: 30 September 2025

Keywords
Community radio,
Agricultural information,

Correspondence
Md. Mamun ur Rashid
✉: murashid@pstu.ac.bd

ABSTRACT

Timely and need-based information is a crucial precursor in informed decision-making. Community radio serves as a vital avenue for farmers who lack access to mainstream media. However, the use of community radio by farmers for agricultural purposes remains unclear due to a paucity of empirical information. This research investigated the use of community radio (CR) for delivering agricultural information to farmers and the associated factors influencing its use. Therefore, the study employed a mixed-methods approach and randomly selected 278 respondents from the coverage area of a community radio station in Barguna District, Bangladesh. Data were collected through face-to-face structured interviews. Focus group discussions and key informant interviews were also conducted with purposefully selected samples. The use of CR was measured adopting a five-point rating scale (Always 5…… Never 1) against 14 items. The findings reveal that, despite being mandated to provide need-based agricultural information, the time allocated for agricultural programs on the radio is minimal, averaging only 2 hours and 35 minutes per week. Among respondents, 71% listen to CR agricultural programs from rarely to very regularly, while 29% do not listen at all. According to the respondents, the participation of community members, particularly farmers, in radio programs is virtually non-existent. They primarily use CR information for decision-making regarding disease and pest management (WM = 0.633), determining fertilizer doses and application methods (WM = 0.546), and receiving weather information (WM = 0.543). Logistic regression results indicate that age, cultivable land, income from agriculture, access to CR radio, and the network strength of CR significantly influence respondents' usage of CR. This research recommends increasing the number of agricultural programs on community radio (CR) through consistent budget allocation while incorporating more farmer-participatory initiatives. Additionally, a targeted campaign aimed at elderly farmers should be implemented to enhance their interest in CR, ultimately improving their access through a strengthened network.

Introduction

Agriculture encompasses a broad domain that requires accurate information to thrive. Information is considered the most valuable asset, and mass media channels play a decisive role in disseminating information to the rural population through agricultural development schemes (Kaske, 2020). Agricultural information communicates and influences agricultural productivity in various ways. Farmers need information on the latest varieties, changing weather patterns, crop production techniques and improved agricultural practices to ameliorate their yield (Swortzel, 2001). Appropriate information can help inform decisions regarding land, labor, livestock, capital, and management. Therefore, agriculture can be revolutionized if the free flow of information among the farmers is ensured (OECD, 2001).

In the context of developing countries like Bangladesh, where agriculture has a significant impact on the growth and development of other sectors, it is essential to provide farmers with the necessary information that can enhance their agricultural productivity. In this regard, mass media can play a significant role in connecting farmers with key providers of extension services, as public extension services are primarily delivered through interpersonal communication methods, which are expensive, time-consuming, and personnel-intensive. This service has become target and production-oriented rather than income-oriented for

Cite This Article
Mamun ur Rashid, M. and Liza, F.Y. 2025. Farmer's Use of Agricultural Information and Influencing Factors: The Case of a Selected Community Radio Station in Coastal Bangladesh. *Jour. of Bangladesh Agricultural University,* 23(2): 366-376. https://doi.org/10.3329/jbau.v23i3.84456

the farmers. Furthermore, inadequate training for professionals, insufficient incentives and accountability, and the minimal or non-utilization of modern communication tools and techniques are key constraints confronting agricultural extension services (Kumar et al., 2012).

Simply delivering information is not enough to instigate radical changes in a community unless it is relevant, appropriate, and tailored to local needs and preferences (Sani et al., 2014). Moreover, farmers' access to information sources also plays a crucial role in ensuring the effective utilization of information in agricultural production (Kelil et al., 2020). Recognizing the benefits of community radio in enhancing access to information for poor peasants and giving them a voice, the government of Bangladesh established several community radio stations throughout the country. According to the Bangladesh NGOs Network for Radio and Communication (BNNRC), Bangladesh currently has 19 community radio stations scattered throughout the country (BCRA, 2024).

Community radio is tertiary broadcasting works alongside public and private radio broadcasting that is guided, controlled and owned by a community and caters to the needs, interests and aspirations of a community (Nirmala, 2015). Community radio is a medium that gives voice to the voiceless and serves as a platform for marginalized communities that lack access to traditional media, thereby enabling them to share their needs, grievances, and successes with others. The government has established several community radios to facilitate the dissemination of information. Outreach of agricultural information through community radio has become a ready-made system for disseminating information to farmers, enabling them to capitalize on market opportunities and adapt to ongoing changes in their production systems, making informed decisions. It is non-profit, non-commercial and supported by its audience and community (Mamun-ur-Rashid, 2019).

Although these radio stations are disseminating information to many listeners every day, studies exploring the use of such information for farm decision making are scarce. Studies (Nyareza & Dick, 2012; Sivagami & Samundeeswari, 2019) mainly focused on the use of community radio for reaching agricultural information or utilizing community radio as a tool in agricultural extension services (Chapman et al., 2003; Rao, 2015). Therefore, his study aims to investigate the use of agricultural information transmitted through community radio in a coastal area of Bangladesh. In addition, this research also reveals the factors influencing the use of information and the challenges the listeners faced in receiving information from community radio. The findings of this research could assist policymakers and planners in formulating effective strategies to disseminate and use information broadcast via community radios in Bangladesh and other similar countries.

The primary objective of this study was to determine the current status of farmers' use of CR information for farm decision-making and the factors influencing this use. However, the specific objective of this study encompasses firstly, to explore the present status of agricultural programs broadcast by the CR station under study. Secondly, to assess the farmers' level of use and engagement with CR agricultural programs. Thirdly, to reveal the factors influencing the use of CR by the farmers for receiving agricultural information for farm decision-making. Finally, to reveal the constraints faced by the farmers in listening to and engaging with CR agricultural programs.

Conceptual Framework

Agricultural farming is a complex venture, and its success depends on the interplay of various biological, environmental, economic, and social factors. Therefore, farm-level decision-making requires timely, adequate, and relevant information, which can help farmers compete more effectively on a global scale through increased production, effective marketing, and higher incomes (Drafor, 2016). However, the use of information can be influenced by various factors. According to Rogers' diffusion of innovation theory, various socio-economic, personality variables and communication behavior can influence the adoption of new technologies (Rogers, 1995). According to studies, these socioeconomic variables include gender, age, education, number of family workers, farm characteristics, distance to markets, and access to climate information (Tran et al, 2019; Fosu-Mensah et al., 2012; Perosa et al., 2021; Islam et al., 2024). The theory of planned behavior proposed by Icek Ajzen in 1991 posits that if a person believes the behavior will lead to a favorable outcome, such as income from agriculture, then they are more likely to have a positive attitude towards it. The same theory further posits that perceived behavioral control can influence a person's planned behavior. Various internal and external factors influence perceived behavioral control. The internal factors include capacity, which is influenced by the training received for a particular job, and maintaining regular contact with agricultural extension services (Charmchian L. et al., 2022; Xu & Ma, 2022; Perosa et al., 2021; Rahaman et al., 2020). In contrast, the external factors include the presence of barriers or facilities such as distance from the sub-district town, access to information sources, availability of electricity and network strength of the CR (Rahaman et al., 2020; Houngbonon et al., 2021).

Methodology

Research site

This research focused on a community radio specifically designed to deliver agricultural information at selected areas of a coastal upazila named…. sub-district) in Barguna District, Bangladesh (Figure 1). Farmers under the coverage of this radio station have faced various challenges during farming, primarily due to frequent natural disasters and soil salinity. Moreover, farmers have limited access to agricultural information due to their remote locations and poor road and communication infrastructure (Lee et al., 2023; Nambiro et al., 2005). The farming system in the research area is characterized by subsistence and rain-fed agriculture. Most farmers planted almost the same kinds of crops in the same seasons.

Study Design

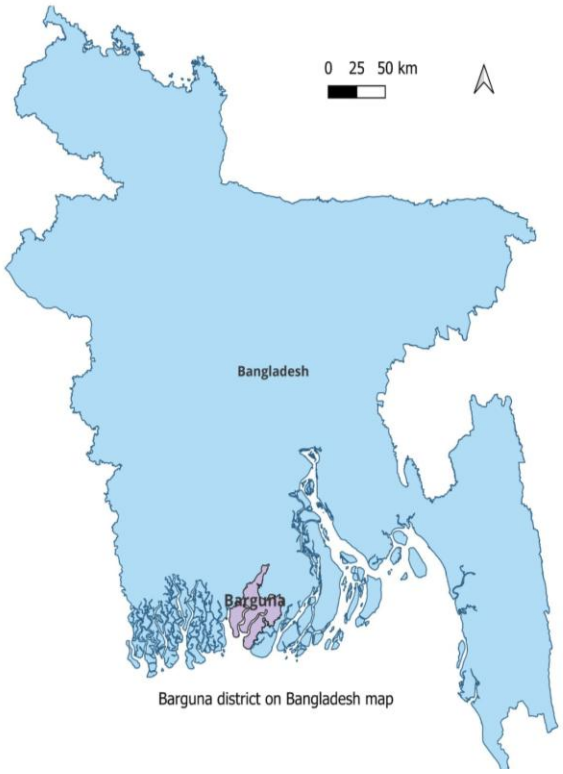


Fig. 1 Study area on Bangladesh map

This research employed an embedded mixed-methods approach to investigate farmers' use of CR-based agricultural information. In this design, the qualitative data is embedded within the quantitative data. This design is most effective when you want to focus on quantitative data while also understanding how qualitative data provides additional insight into the facts (Dovetail Editorial Team, 2023). Mixed methods research is an approach that enables researchers to employ a diverse range of methods, combining inductive and deductive thinking, and offsetting the limitations of exclusively qualitative and quantitative research through a complementary approach that maximizes the strengths of each data type and facilitates a more comprehensive understanding of issues and potential resolutions.

Population and sampling

The population of this study consisted of farmers residing within the range of the selected radio station network. Both male and female farmers were selected randomly for this research using a polling list collected from the Union Parishad, the lowest administrative unit of the government of Bangladesh. From eight unions in the selected sub-district, we randomly selected six villages under six union parishads for data collection.

As the total number of farmers residing in the study location is unknown, this study adopted Cochran's formula (1977) at a 90% confidence level and 5% margin of error. According to the formula the required sample size was 271. However, this study considered 278 farmers as the sample. Qualitative methods employed a purposive sampling approach.

Data collection instrument and study variables

Quantitative data were collected by trained interviewers using a structured interview schedule in a face-to-face setting. Before the interviews, each respondent was informed about the study's aims and objectives and ensured the confidentiality of the data. They were also informed that their participation in this interview will be regarded as written consent to appear in the interview. The interview schedule was finalized after a pre-test on 20 similar respondents in the selected sub-district. The use of community radio information was measured using a five-point rating scale, ranging from Always (4) to Never (0) against 14 items as shown in Table 2. For logistic regression, each respondent was categorized into two groups: high users and low-to-no users, based on the median value. Logistic regression is simple, easily interpretable, and can accommodate continuous, dummy, and categorical variables and does not need normally distributed variables (Grammarly, 2024; Hoffman, 2015). Moreover, rather than predicting a numerical value, it predicts a discrete dichotomous value (e. g. high use and low-to-no use) (Seufert, 2014). However, the predictor variables in the study were measured using appropriate scales. To gather qualitative data, two focus group discussions and five key informant interviews were conducted with farmers, CR managers, and CR program developers.

Data processing and analysis

The data collected in this research are described and analyzed using descriptive statistics, such as the mean and standard deviation. To identify the factors influencing the use of community radio information, this study employed logistic regression analysis. The logit model considered the predictor variables, such as age, gender, education, family size, cultivable land, agricultural income, distance of residence from the upazila town, marital status, training in farming, frequency of extension contacts, availability of electricity, access to community radio, and network strength. Qualitative data were analyzed based on themes. All statistical analyses were performed using SPSS 23.0 and NVivo 14.0 software packages.

Results

General characteristics of the respondents

Data presented in Table 1 shows that the average age of the farmers was 46.57 years and the average family size was five persons. On average, the farmers had 171.10 decimals of land and earned 120.88 thousand Taka annually from agricultural sources. More than half of the respondents did not maintain contact with agricultural extension agents, and nearly 80% had not received any agricultural training in the last two years. However, less than half (47%) of respondents had easy access to CR listing. In comparison, almost half (47.10%) of the respondents enjoyed a strong community radio network in their territory. The details of the other variables in the study is displayed in Table 1.

Table 1. General characteristics of the respondents (n=278)

Variable	x̄/category	σ/%
Age	46.57	13.69
Education	4.65	4.64
Family size	4.91	1.80
Cultivable land	171.10	170.33
Income from agriculture	120.88	94.05
Residence distance	4.57	3.16
Gender	Male	91.4
	Female	8.6
Marital status	Married	3.60
	Unmarried	96.40
Training in farming	Yes	20.50
	No	79.50
Frequency of extension contact	Regular	5.40
	Frequent	15.10
	Occasional	10.10
	Rare	15.50
	Never	54.00
Availability of electricity	Yes	93.50
	No	6.50
Access to CR	Very easy	46.80
	Easy	24.50
	Moderate	12.20
	Difficult	10.10
	No	6.50
CR network strength	Weak	13.10
	Moderate	39.80
	Strong	47.10

Present status of agricultural programs broadcast in CR

The selected radio station is mandated to disseminate agricultural information to the people within its coverage area. However, few programs are focusing on agricultural issues and information. As shown in chart 1, the radio airs 56 hours of programs per week, of which only three programs, lasting up to 2 hours and 35 minutes, are related to agricultural content. These programs encompass interactive discussions with expert guests, phone-in programs and agriculture and weather news. '*Entertainment programs receive more importance than agricultural programs on this radio station.*' (Participants of FGD-1). '*Currently, there are fewer agricultural programs available than other programs. In particular, the number of fisheries and livestock programs is limited.'* (A radio management personnel). Supporting our findings, a study in Bangladesh also identified a limited number of agricultural programs on the radio (Das et al., 2021).

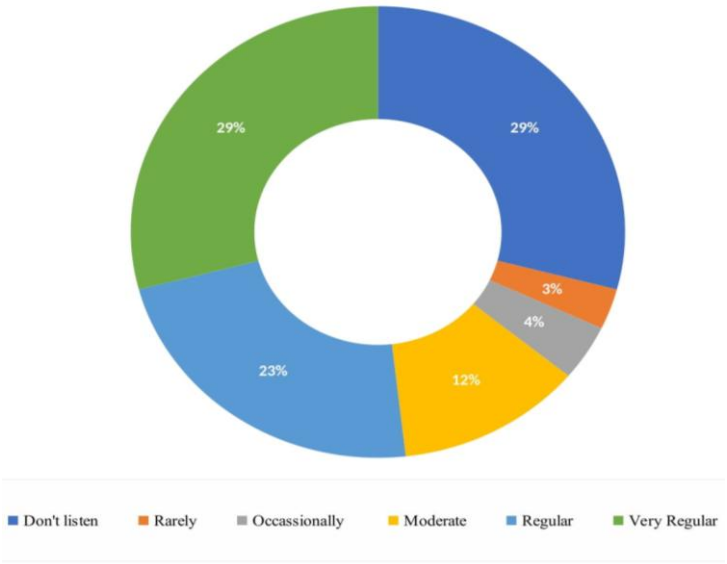
Chart 1. Program chart of Amtoli Krishi Radio (June, 2021)

Day	Morning session			Afternoon session											
	9:00-9:15	9:15-9:30	9:30-11:00	3:00-3:25	3:30-3:55	4:00-4:20	4:20-4:30	4:30-5:55	6:00-6:20	6:20-6:30	6:30-6:55	7:00-7:25	7:30-7:55	8:00-8:20	8:25-9:00
Saturday							Station promo, awareness, sport, PS			Station promo, awareness, sport, PS					
Sunday															
Monday		Prog. 1										Prog. 2			
Tuesday															
Wednesday												Prog. 3			
Thursday															
Friday															

Note: Program 1(Banghbandhur Krishi Vabna); Progam 2 (Khet Khamar on the contemporary agricultural issues); Program 3 (Krishi Katha)

The extent of listening CRAPs

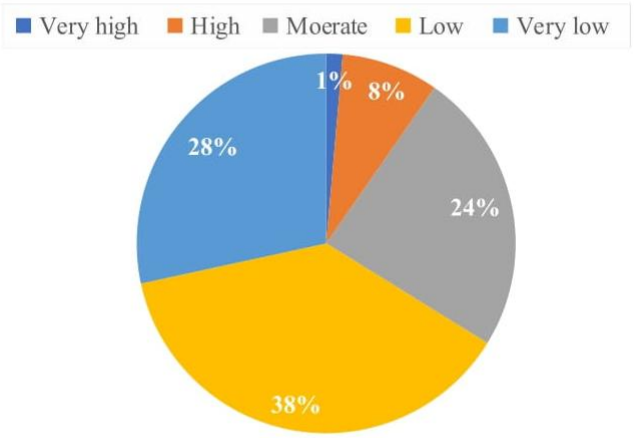
Figure 2 shows that 29% of the farmers did not listen to agricultural information broadcast on CR. However, an equal proportion of listeners regularly tune in to CR-based agricultural programs. Among the rest of the listeners, 23% enjoy community radio agricultural programs (CRAPs) on a regular basis. '*Elderly farmers are less likely to listen to CRAPs. Some are indifferent, while others believe that their experience is sufficient for conducting agricultural farming*.' (Participants FGD-2).



Farmer's participation in CRAPs

The data in Figure 3 shows that farmers' participation in the CRAPs is remarkably low, with 90% of respondents indicating that farmers have moderate to very low participation in CR programs. '*Farmers' participatory programs are minimal on our radio. However, people become more motivated when they listen to achievements or information from those in the same area. To ensure farmers' participation in programs, equipment and manpower must be transferred to the field level. We also need more manpower and modern devices, which are currently insufficient.*' (A radio

management personnel). This finding shows a discrepancy with the findings of Al-Hassan et al. (2011). According to them, the broadcast content in community radio is mainly popular and relevant to local needs. Hence, apart from commercial broadcasting media, community radio stations are owned, operated, and driven by their communities.



Use of CR information for agricultural decision-making

The data arranged in Table 2 show that among the CR listeners, a small proportion of the audience used community radio for agricultural decision-making. The same Table further shows that listeners rarely use community radio for disease and pest-related decision-making (WM= 0.633), determining fertilizer dose and application method (WM=0.546), acquiring weather information (WM= 0.543) and deciding on irrigation technique, time and frequency. However, details of other uses of CR-based agricultural information are displayed in Table 2. '*Many listeners of agricultural programs do not apply the information to their farming practices. This often occurs because the information is incomplete, necessary inputs are unavailable, or it does not address local needs.*' (Participants FGD 1 and FGD 2).

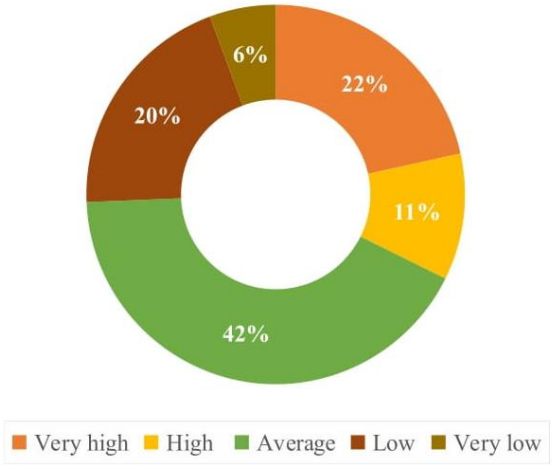
Table 2. Use of CR information for agricultural decision-making (n=278)

Sl.	Topic of information	Extent of Use					WM
		AL	FQ	OC	RE	NE	
1	Land selection	1	3	3	2	269	0.075
2	Land preparation	2	3	3	2	268	0.089
3	Selection of an appropriate crop variety	8	6	8	5	251	0.255
4	Time of seed sowing and transplanting	7	5	4	1	257	0.187
5	Irrigation technique, time and frequency	12	10	7	8	241	0.359
6	Disease and pest management	20	18	15	12	213	0.633
7	Fertilizer dose and application method	15	19	11	13	220	0.546
8	Weed control	4	6	4	5	259	0.169
9	Maturity symptom	1	2	1	2	271	0.050
10	Crop cutting and collection	0	3	1	2	272	0.046
11	Crop storage method	1	2	2	2	271	0.057
12	Crop marketing	1	2	5	1	269	0.075
13	Soil salinity management	1	2	11	5	259	0.133
14	Weather information	12	28	9	1	228	0.543

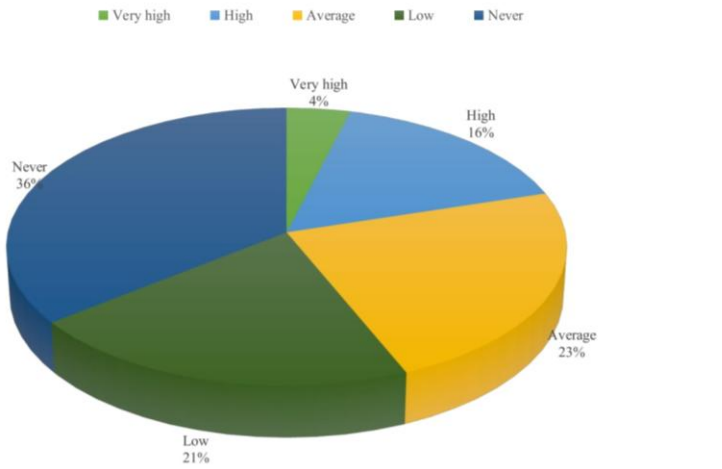
Note: WM= Weighted mean; AL= Always; FQ= Frequently; OC= Occasionally; RE= Rarely; NE= Never

Perceived Contribution of CRAPs on Knowledge and Adoption

The data in Figure 4 shows that among the CR listeners, only 6% gain high knowledge, and 21% gain very high knowledge from agriculture-based information. The pie chart also shows that 42% of listeners have average knowledge of agriculture-based CR programs. However, other details can be observed in Figure 4.



Though the rate of increasing knowledge by listening to CR is quite good, the adoption rate of new technologies is poor. Figure 4 shows that 36% of listeners never adopt new technology after listening to CRAPs. On average, 23% of the audience accepts new technology by listening CRAPs. Additional details are provided in Figure 5.



Note: % is counted based on only the participants who responded to the questions

Constraints in listening CRAPs

Respondents generally encountered few hurdles while listening to CR agricultural programs (Figure 2). However, the primary reason for not listening to community radio agricultural programs was the limited number of agricultural programs available. Endorsing this fact, management personnel stated, '*The number of agricultural programs is limited because they require experts or resource persons who are not readily available*. *The allowance given to experts is a lump sum. Moreover, to retain radio listeners and conceal the shortage of anchors and other resource persons, we emphasize entertainment more than agricultural information.* The lack of sponsors for such a program is

also a significant obstacle.' 'Due to a shortage of sponsors and experts, we need to keep our agricultural programs short' (A radio anchor). The program broadcasting time is another obstacle to listening to community radio programs. 'You can see that the agricultural programs are broadcast from 9:00 a.m. to 11:00 a.m. and 7:00 p.m. to 8:00 p.m.During this time period, *we remain busy with our field work or outside for daily chores'* (Participants FGD 2). Personal reluctance at the individual level was another significant hindrance that impeded radio listeners. This constraint is more conspicuous for aged people. **'***Aged farmers are reluctant to listen to the radio and use information***'** **(**An elderly farmer in the key informant interview). Supporting our findings, a study in Bangladesh found a negative relationship between age and radio use for agricultural information (Das et al., 2021).

Table. 3. Constraints in listening to community radio agricultural programs

Sl.	Constraints	Yes (f)	No (f)
1	Personal reluctance	37	158
2	Not reliable	2	193
3	Not believable	2	193
4	Difficult to understand information	14	181
5	Program broadcasting time is not convenient	50	145
6	Short duration of agricultural programs	74	121
7	Limited number of programs agricultural programs	106	89

Factors influencing the use of CR

Factors influencing the use of CR for agricultural information are measured by deploying logistic regression. The logistic regression results in Table 4 indicate that farmers' use of CR agricultural information in farm decision-making is significantly influenced by the farmers' age, with older farmers tending to low-to-no use of CR agricultural information in farm decision-making. The farmers' probability of using CR agricultural information in farm decision-making is significantly reduced with an increase in farm size. Interestingly, if farmers have higher incomes from agriculture, the probability of using CR agricultural information in farm decision-making increases significantly. The farmers' access to CR largely shapes their use of CR agricultural information. Compared to farmers with very easy access, those with difficult, moderate, or easy access showed a significantly less tendency to use CR for agricultural information in farm decision-making. Although not highly significant, farmers with weak CR networks used CR agricultural information less frequently than those with strong CR networks. Endorsing our findings, a study in Bangladesh also found a negative association between age and radio use (Das et al., 2021). Similarly, a study also found accessibility to be a significant determinant of radio use in Bauchi metropolis, Nigeria (Hamid et al., 2020). However, in contrast to our findings, a study in Ireland found that local radio had a unique appeal for older farmers in receiving agricultural extension services (Gorman et al., 2018).

Discussion

The primary objective of this study was to investigate the extent to which community radio-based agricultural information is used in farm decision-making within a selected region of Bangladesh. This study employs a mixed-methods design to achieve its research objectives. Thee selected radio station is mandated to deliver essential agricultural information tailored to local needs and preferences, which requires the extensive participation of local stakeholders in planning, developing, and delivering CRAPs. Moreover, the participation of local listeners in community radio media content is essential for encouraging local development (Bamig & Osune, 2021). The findings of the study reveal that listeners' participation in community radio agricultural program development was very low. Supporting our findings, Zakaria (2020) also found low participation of listeners in agricultural programs in Ghana. The participation of agricultural experts in radio programs was also low. Developing participatory programs needs money and resources. The selected radio station lacks permanent revenue streams to develop participatory programs. Therefore, the development of such programs relies on external funding sources, which are often time-bound and unsustainable over the long term. As a result of the failure to manage funds, the radio reduced the broadcasting hours of agricultural programs and restricted the development of new and participatory programs. Currently, the radio relies on funding from various projects designated for developing programs on specific issues, including climate change awareness, adaptation strategies, and oil crop production, among others. When the projects are terminated, the radio must stop the funded program. Therefore, to ensure a continuous supply of information, regular funding is essential. Additionally, the government can issue an executive order for agricultural experts in the Barguna

district to assist the selected radio station in planning, developing, and participating agricultural programs.

Table 4. Factors influencing the use of CR information

Characteristics	COEF.	S. E.	OR	p	Result
Age	-0.028	0.014	0.973	0.047	Supported
Gender	0.231	0.625	1.259	0.712	Not supported
Education	-0.002	0.041	0.998	0.965	Not supported
Marital status	-0.514	1.240	0.598	0.679	Not supported
Family size	-0.099	0.090	0.905	0.270	Not supported
Cultivable land	-0.003	0.001	0.997	0.005	Supported
Training	0.129	0.517	1.138	0.803	Not supported
Extension contacts					
No contact	0.077	0.825	1.080	0.925	Not supported
Rarely	-0.271	0.876	0.763	0.757	Not supported
Moderately	0.246	0.961	1.279	0.798	Not supported
Frequently	-0.047	0.853	0.954	0.956	Not supported
Regular (ref)				0.948	
Income from agriculture	0.000	0.000	1.000	0.001	Supported
Distance from Upazila town	0.008	0.059	1.008	0.889	Not supported
Availability of electricity	-0.201	0.833	0.818	0.810	Not supported
Access to CR				0.055	
No	-22.686	9455.033	0.000	0.998	Not supported
Difficult	-1.199	0.654	0.301	0.067	Supported
Moderate	-1.515	0.565	0.220	0.007	Supported
Easy	-1.275	0.483	0.279	0.008	Supported
Very easy (Ref.)					
Network strength				0.130	
Weak	-1.284	0.707	0.277	0.069	Supported
Moderate	-0.041	0.431	0.960	0.924	Not supported
Strong (Ref.)					
Information need	-.001	.019	.999	.962	Not supported
Constant	3.888	1.995	48.794	.051	
Observation(N)			278		
Cox-Snell R-square (%)			30.40		
Likelihood ratio static			-229.824		
Model Coefficients λ(p)			99.328(0.000)		

The findings of this study suggest that radio programs have a significant impact on enhancing the agricultural knowledge of listeners. A study in Ghana focusing on the role of community radio in livelihood improvement also claimed that community radio can contribute to the knowledge and awareness of listeners (Al-Hassan et al 2011). However, the use of this knowledge for farm decision-making and adopting new technologies remains limited. Community radio is a mass medium primarily utilized for spreading knowledge and raising awareness. According to Rogers (2003), the innovation decision follows five consecutive steps: knowledge, persuasion, decision, implementation, and confirmation. Rogers (2003) further argues that mass media channels and cosmopolitan channels are more important during the knowledge stage, while local channels and interpersonal channels play a bigger role in the persuasion stage to develop a strong attitude toward technology acceptance.

The findings of this study reveal that radio use probability decreases with an increase in listeners age and farm size, while it increases with an increase in access and skills. Supporting our findings, a study in Bangladesh also found that age is negatively associated with the use of radio for agricultural information (Das et al., 2020). Another study in Tanzania found that accessibility can enhance the usage of radio and television for agricultural knowledge (Mtega, 2014). Older farmers have less skill in using digital media. Additionally, older farmers tend to be risk-averse and less inclined to adopt modern information. In general, farmers with large farm sizes maintain continuous contact with the agricultural extension service. Moreover, public extension service places more

emphasis on large farmers to demonstrate the success of modern technologies. Hence, large farmers show less interest in using CR for receiving agricultural information. An undisturbed and strong network ensures a reliable connection, allowing the audience to listen to any agricultural program on the radio. On the other hand, a weak and interrupted network ceases to capture people's interest and attention in listening to any program. Notably missing information due to a network problem hampers the completeness of information, making it difficult to apply practically. The instruments used in broadcasting radio programs are old and cannot support a strong network. This study makes a significant contribution to the literature in several ways. It is one of the few studies focusing on the use of community radio-based agricultural information in farm decision-making. This study will help program managers and policy planners to realize the aspects of gaps in information delivery and practical use. Moreover, this research will help to realize the extent of community participation in CRAPs. The present study also focused on the determinants that shape the use of community radio agricultural information on farm decision-making. In addition to its significant contributions, this study also includes several limitations. It covered a limited geographical area and collected data from a limited number of samples, which warrants caution when generalizing the results. There are numerous aspects of farm decision-making, but this study considered only a limited number of them. The cross-sectional data collected in this study may be insufficient to determine the seasonal variation in information use for farm decision-making.

The findings of this research can address several policy pathways for improving the efficiency of CR in disseminating agricultural information. The relevant authority should consider airing more agricultural programs, as the current number of such programs is severely limited. It is essential to investigate, how interpersonal and localized media can persuade community radio listeners to adopt and utilize agricultural information broadcast via the selected radio station. Strengthening the CR network and a targeted encouragement campaign for elderly farmers is also necessary to enhance their willingness to engage with CR agricultural programs.

Conclusions

The community radio being studied forecasts only a few short agricultural programs each week, and people's participation in community agricultural programs is very low due to a lack of funds to develop programs and hire experts. Farmers' use of CR for agricultural information is also very low, and they rarely incorporate this information into their farm decision-making. This low use is mainly due to the limited number of short programs. Various socio-personal factors, such as age, farm size, annual income, accessibility and network strength can influence on how community radio is used for agricultural information.

Recommendations

In light of the findings, this study recommends more agricultural programs based on local needs and preferences, involving the local community and experts with the CRAPs, regular and sufficient budget for the CRAPs, improving the radio network, and using other traditional and digital media for the promotion of the content and time of agricultural programs. Moreover, to enhance the use of CR agricultural information for farm decision-making, it is essential to integrate localized and cosmopolitan interpersonal media, such as local leaders, advanced farmers, and agricultural extension workers with community radio agricultural programs.

Funding statement

This research was funded by the Research and Training Center, Pauakhali Science and Technology University. Grant no. Ag-22, 2020-21

References

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-t

Al-Hassan, S., Andani, A., & Abdul-Malik, A. (2011). The role of community radio in livelihood improvement: The case of Simli Radio. Field Actions Science Reports. The journal of field actions, 5. https://doaj.org/article/e9a8e4e289004a35b289a62c3124730c

BCRA. (2022). Community Radio Stations in Bangladesh. Available at: https://www.bcrabd.org/?sa_cat=10

Bmig, F. B., & Osune, O. (2021). Exploration of Listeners' Participation in Media Content of Community Radio: Lessons from Forte FM. *Global Media Journal*, 19(46), 1-9.

Chapman, R., Blench, R., Kranjac-Berisavljevic, G., & Zakariah, A. B. T. (2003). Rural radio in agricultural extension: the example of vernacular radio programmes on soil and water conservation in N. Ghana. *AgREN Network Paper*, 127(2), 456-489.

Charmchian L., & Iranmanesh, A. (2022). The Impact of Information Needs and Extension Training on Information Seeking Behavior of Rice Farmers in Sari, Mazandaran. Agricultural Education Administration Research, 14(60), 67-87. https://doi.org/10.22092/jaear.2022.358169.1888

Cochran, W. G. (1977). Sampling techniques (3rd ed.). New York: John Wiley & Sons.

Das, S., Ahmed, K. U., & Awal, M. A. (2021). The role of radio and television in the dissemination of agricultural technologies among farmers of Bangladesh. Bangladesh Journal of Agriculture, 55-64.

Das, S. K., Hossain, M. M., Das, P. S., & Kabiraj, M. S. (2020). Use of radio by the farmers in receiving agricultural information. International Journal of Natural and Social Sciences, 8 (3), 81, 86. https://doi.org/10.5281/zenodo.7004587

Dovetail Editorial Team. (2023). What is mixed methods research? Available at:

Drafor, I. (2016). Access to information for farm-level decision-making. Journal of Agricultural and Food Information, 17(4), 230-245. https://doi.org/10.1080/10496505.2016.1213170

Grammarly. (2024). Logistic Regression Explained: How It Works in Machine Learning. https://www.grammarly.com/blog/ai/what-is-logistic-regression/

Fosu-Mensah, B. Y., Vlek, P. L., & MacCarthy, D. S. (2012). Farmers' perception and adaptation to climate change: a case study of Sekyedumase district in Ghana. Environment, Development and Sustainability, 14, 495-505. https://doi.org/10.1007/s10668-012-9339-7

Gorman, M., Keogh, O., & Clarke, P. (2018). The Use and Potential of Local Radio for Agricultural Extension in the West of Ireland. International Journal of Agricultural Extension, 51-59. https://doi.org//2399/1181

Hamid, A. M., Sufyanu, A., Al-Sadique, S., & Ronke, J. C. (2020). Analysis of the factors influencing choice of radio station programmes among listeners in Bauchi metropolis. African Scholar Journal of Humanities and Social Sciences, 18(6), 363-388. https://doi.org//2021/01ajhss2020.261

Hoffman, Julien I.E. (2015). Chapter 33 - Logistic Regression. In Julien I.E. Hoffman (Ed.), Biostatistics for Medical and Biomedical Practitioners. (pp 601-611). Academic Press. https://doi.org/10.1016/B978-0-12-802387-7.00033-0. https://www.sciencedirect.com/science/article/pii/B9780128023877000330)

Houngbonon, G. V., Le Quentrec, E., & Rubrichi, S. (2021). Access to electricity and digital inclusion: evidence from mobile call detail records. Humanities and Social Sciences Communications, 8(1), 1-11. https://doi.org/10.1057/s41599-021-00848-0

Islam, M. S., Kamarulzaman, N. H., Shamsudin, M. N., Nawi, N. M., Alam, M. J., & Bhandari, H. (2024). Factors Influencing Farmers' Behavior Towards Modern Rice Varieties in Bangladesh. Malaysian Journal of Agricultural Economics, 31(1). https://doi.org/10.36877/mjae.a0000511

Kaske, D. (2020). Information needs and seeking behavior of farmers in Southern Ethiopia. Library Philosophy and Practice, 4341. https://doi.org/10.5123/lphilnp/4341

Kelil, A., Girma, Y., & Hiruy, M. (2020). Access and use of agricultural information in Africa: Conceptual review. Information and Knowledge Management. Vol. 10, No. 7, pp. 1-5 https://doi.org/10.7176/ikm/10-7-01

Kumar, U., Kumar, A., & Thakur, P. K. (2012). Status and constraints of extension services. Status of Agricultural Development in Eastern India. ICAR Research Complex for Eastern Region, Patna, 479-492. https://doi.org/10.012-9339-7

Lee, H. B., McNamara, P. E., & Ho, H. (2023). Road accessibility and agricultural extension services in Malawi. *Agriculture & Food Security*, *12*(1), 3.

Mamun-ur-Rashid, M. (2019). Community radio in family health and nutrition awareness building among the listeners. Research Report, National Institute of Mass Communication. https://doi.org/mur453.8709

Mtega, W. P. (2018). The usage of radio and television as agricultural knowledge sources: the case of farmers in Morogoro region of Tanzania. International Journal of Education and Development using Information and Communication Technology, 14(3), 252-266.

Nambiro, E., Omiti, J. M., & Mugunieri, G. L. (2006). Decentralization and access to agricultural extension services in Kenya. SAGA Working Paper, USAID. https://www.saga.cornell.edu/images/nambiro.pdf

Nirmala, Y. (2015) The role of community radio in empowering women in India. Media Asia 42(1–2): 41–46. https://doi.org/10.1080/01296612.2015.1072335

Nyareza, S., & Dick, A. L. (2012, September). Use of community radio to communicate agricultural information to Zimbabwe's peasant farmers. In Aslib Proceedings (Vol. 64, No. 5, pp. 494-508). Emerald Group Publishing Limited.

OCED (2001) Adoption of Technologies for Sustainable Farming Systems Wage-Ningen Workshop Proceedings (Vol. 14, pp. 14-23). https://www.oecd.org/greengrowth/sustainable-griculture/2739771.pdf

Perosa, B., Newton, P., & Carrer, M. J. (2021). Access to information affects the adoption of integrated systems by farmers in Brazil. *Land Use Policy*, 106, 105459. https://doi.org/10.1016/j.landusepol.2021.105459

Rahman, T., Ara, S., & Khan, N. A. (2020). Agro-information service and information-seeking behaviour of small-scale farmers in rural Bangladesh. *Asia-Pacific Journal of Rural Development*, 30(1-2), 175-194. https://doi.org/10.1177/1018529120977259

Rao, S. (2018). Using radio in agricultural extension. What works in rural advisory services, 99. https://farmradio.org/wp-content/uploads/2020/09/GFRAS-GGP-Note18_Using-Radio-in-Agricultural-Extension-1.pdf

Rogers, E.M. (2003). Diffusion of innovations (5th ed.). New York: Free Press.

Swortzel, K. A. (2001). Role of information technology in agriculture. *The Agricultural Education Magazine*, 73(6), 26–27. https://eric.ed.gov/?id=EJ627519

Rogers, E.M. (1995) Diffusion of Innovations. 4th Edition, the Free Press, New York. https://doi.org/10.1007/978-3-642-79868-9_2

Sani, L., Boadi, B. Y., Oladokun, O., & Kalusopa, T. (2014). The generation and dissemination of agricultural information to farmers in Nigeria: A review. *Journal of Agriculture and Veterinary Science 7*(2), 102-111. DOI: 10.9790/2380-0721102111

Seufert, E. B. (2014). Chapter 3-quantitative methods for product management. *Freemium Economics*, 47-82.

Sivagami, A., & Samundeeswari, R. (2019). A study on the usage of radio in agricultural management practices by the farmers of Thanjavur district. *International Journal of Management* (IJM), 10(2).

Tran, N. L. D., Rañola Jr, R. F., Ole Sander, B., Reiner, W., Nguyen, D. T., & Nong, N. K. N. (2020). Determinants of adoption of climate-smart agriculture technologies in rice production in Vietnam. *International journal of climate change strategies and management*, 12(2), 238-256. https://doi.org/10.1108/ijccsm-01-2019-0003

Xu, Z., Li, J., & Ma, J. (2022). Impacts of extension contact on the adoption of formulated fertilizers and farm performance among large-scale farms in rural China. *Land*, 11(11), 1974. https://doi.org/10.3390/land11111974

Zakariah, A. T. (2020). Participation in Local Radio Agricultural Broadcasts and Message Adoption Among Rural Farmers in Northern Ghana. In The Routledge companion to local media and journalism (pp. 457-467). Routledge.