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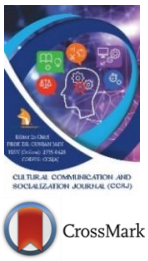

RESEARCH ARTICLE

THE ROLE OF DEVELOPMENT COMMUNICATION TOOLS IN AGRICULTURAL INFORMATION SERVICE (AIS) FOR EMPOWERING BANGLADESHI FARMERS

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ABSTRACT

The Development Communication Tools (DCTs) of the Agriculture Information Service (AIS) play an important role in disseminating agricultural information. Farmers' exposure to these DCTs of AIS influences higher crop production and better farm management. The main purpose of this study was to determine and describe the exposure of DCTs of AIS by the farmers in receiving agricultural information. The individual socioeconomic characteristics of the farmers have been explored from the study and the relationship between the exposure of respondents to DCTs of AIS and their selected characteristics has been determined too. Data were collected from randomly selected 80 farmers of five villages of Dumuria upazila under Khulna district of Bangladesh, by using a structured interview schedule through personal interviews. Appropriate Likert scales were used to measure the concerned variables. Spearman's Ranked Correlation Coefficient (ρ) was used to test the relationship between the independent and dependent variables. The farmers were exposed to 13 out of 14 DCTs of AIS. However, the majority (72.5 %) of the respondents showed very low exposure to DCTs of AIS. The respondents were highly exposed to posters or stickers (65.93%), while they were less exposed to the ICT laboratory (0.94%). Other important DCTs as exposed by the farmers were folder/leaflet/flipchart (64.69%), a television program (54.06%), an agricultural fair (50.93%), and AisTube (1.87%). Among 13 selected characteristics of the respondents, the level of education, farm size, annual family income, cosmopolitanism, innovativeness, extension contact, organizational participation, training, knowledge, and attitude were positively correlated with their level of exposure to the DCTs of AIS. Half (50.00%) of the respondents confronted a medium extent of the problem and 43.75 % confronted a high extent of the problem while a few of them (6.25%) reported a low extent of the problem for being exposed to the DCTs of AIS. Unavailability of personal mobile, TV, and radio was the highly confronted problem (90.00%) followed by lack of resources (87.95%), internet (82.08%), and transportation facilities (78.30%) by the farmers in receiving agricultural information. The AIS authority could revise its policy for the improvement of DCTs based on the findings from the current study.

KEYWORDS

Farmers, Exposure, Development Communication Tools, Agriculture Information Service.

1. INTRODUCTION

Agriculture is the dominant sector in Bangladesh in providing livelihood, employment, and contributions to GDP. However, food security is a challenge in this world's most densely populated country, which is extremely vulnerable to natural disasters. This largest economic sector, agriculture is becoming increasingly information-sensitive day by day. As a result, access to information has become a requirement for agricultural development as well as a valuable resource (Rodman, 2006). Success in enhancing agricultural production, providing income and job opportunities, and ensuring that the agricultural sub-sector performs its manifest function in furtherance of rural and overall national development, depend largely on the communication system adopted to implement various agricultural programs. There is a great need to pull the rural people out of their frames of habitual experience, to create awareness as a prelude to attitudinal and behavioral changes. Mass communication, rationally, gives a means of disseminating knowledge more quickly and extensively than ever before (Neville, 1978).

The extension agencies make use of different media in transferring improved agricultural technologies to the end users. Farmers' communication tools are critical components for the proper transfer of agricultural production-boosting technologies (Okwu and Daudu, 2011). Communication tools are useful in agricultural information transmission in general because they allow a large audience to be reached quickly. They supply farmers with agricultural knowledge as well as a tool to keep them informed about new advances and emergencies. They may also play a role in piquing farmers' interest in new ideas and methods (Ani et al., 1997). The mass media accomplishes this by establishing a conversation agenda, transmitting knowledge, creating and modifying opinions, and changing behaviors (Obinne et al., 2000). The media is also seen to raise awareness and disseminate a personal value system that is conducive to innovation, mobility, and consumption (Nwachukwu, 2003). As a result, extension is a communication process in which many players and stakeholders are linked and information important for long-term agricultural development is communicated (Ani, 2007).

In Bangladesh the Department of Agricultural Extension (DAE) and some other Government and Nongovernment Organizations are working on transferring information/ technologies from a research system (source of technologies) through an extension system (interpreter and dissemination of technologies) to the client system (users of technologies).

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Extension personnel follow several extension methods such as method or result demonstration, farm publications such as, leaflets, bulletins, posters, etc., agricultural radio and TV programs, progressive and contact farmers, local and opinion leaders, field tours, field days, etc.

Many informative agricultural programs are broadcast through radio and public and private channels of television in Bangladesh. *Mati o Manush*, *Banglar Krishi*, *Krishi Dibanishi*, Bangladesh *Krishi*, SAARC *Krishi*, *Hridoye Mati o Manush*, *Hridoye Mati o Manusher Dak*, *Fire Cholo Matir Tane*, *Shamol Bangla*, *Shabuj Bangla*, *Dipto Krishi*, *Matir Shubash*, *Shonali Din*, *Krishi Jog*, *Khamarbari* etc. are broadcast on television. *Desh Amar*, *Mati Amar*, *Krishi Samachar*, *Chashabad, Amar Desh*, *Shonali Fasal*, *Krishikatha*, etc. are broadcast on radio (Alam et al., 2012; DAE, 2016). Agricultural news is also broadcast and embedded in the national and regional news. Three categories of radio transmission are available now in Bangladesh: Bangladesh Betar, FM Radio, and Community Radio (DAE, 2016). Seventeen community radio programs exist in the country (DAE, 2016). The community radio established in *Amtali*, *Barguna* is dedicated to agricultural program broadcasting, and the slogan of this community radio is 'My Radio My Voice' (AIS, 2018).

Agriculture Information Service (AIS) is a government organization under the Ministry of Agriculture (MoA), Government of Bangladesh. The main target of this organization is to carry modern agricultural information and technologies to the farmers' doorstep at the grassroots level, especially through mass media. It was incepted in 1961 as the Agriculture Information Agency which was turned into the Agriculture Information Service in 1985 with a vision "To make available the modern agricultural information services" (AIS, 2018).

The mission of AIS is "Creating awareness by making available the agricultural information and technologies using print electronic and ICT based mass media" (AIS, 1985). Agriculture Information Service basically collects agricultural information from research, academia, extension, and other knowledge centers and converts it in farmers' friendly manner, then disseminates it through different mass media. There are many development communication tools which being used to disseminate information among the farmers. The development communication tools of AIS can be classified as Print media, Electronic media, and ICT media.

The AIS has different program/development tools such as *Krishi katha*, *Krishi* Diary, irregular publications, Radio, TV, Agricultural News, Agricultural video film / *pramannochitro*, Agricultural training, website (www.ais.gov.bd), ICT lab, Agricultural Information and Communication Centre (AICC), Community Rural Radio, *Krishi* Call Centre (KCC), Mobile Apps and Distribution of printed materials from where the farmers can obtain or seek information. Islam (2019) studied the farmers' exposure to the Krishi Call Centre of AIS. Besides Ahmed (1994), Shaikh et al. (2010), Hossain et al. (2012) and Amin et al. (2013a,2013b,2014a,2014b) conducted their studies related to exposure to and effectiveness of radio and TV broadcast agricultural programs of AIS and other Satellite Channels.

Now with the harmony of their findings, it is need to study the exposure of farmers to different development communication tools/programs which are offered by the Agriculture Information Service (AIS) of Bangladesh. Analyzing the issues from farmers' perspective, the researcher undertook this piece of the study entitled "the role of development communication tools in Agricultural Information Service (AIS) for empowering Bangladeshi farmers".

1.1 Specific Objectives

- To determine the farmers' exposure to the development communication tools of AIS
- To analyze the selected characteristics of the farmers
- To ascertain the relationships between the selected characteristics of the farmers and their exposure to the development communication tools of AIS
- To quantify the contribution of the factors influencing the exposure of the farmers to DCTs of AIS
- To explore the problems faced by the farmers to the exposure of DCTs of AIS

2. METHODOLOGY

The study was conducted at 5 villages of Dumuria upazila under Khulna district. The study area consists of 240 villages. But only 5 villages namely Khornia, Kholshi, Sajiara, Dumuria, and Golna were selected purposively. The farmers of the study area who were exposed to DCTs of AIS were treated as the population of this study. Eighty (80) farmers were selected as samples following the accidental sampling method. The distribution of the sampled farmers is shown in Table 1.

Table 1: Distribution of sample population of the farmers

Name of Union	Name of Villages	Sampled Respondents
Khornia	Khornia	20
Dumuria	Kholshi	20
Dumuria	Sajiara	12
Dumuria	Dumuria	15
Dumuria	Golna	13
Total		**80**

Farmers' exposure to DCTs of AIS was the focus (dependent) variable of the study while the selected characteristics of the farmers were considered as independent variables (Table 2).

Table 2: Measuring Units of Independent Variables (i.e., Selected Characteristics)

No.	Selected Characteristics	Measuring Unit
1.	Age	Years
2.	Level of Education	Years of Schooling
3.	Experience in Farming	Years
5.	Family Size	Number
6.	Farm Size	Hectare (ha)
7.	Innovativeness	Number
8.	Cosmopolitanism	Score
9.	Annual Income	'000' BDT
10.	Training Exposure	Number
11.	Extension Media Contact	Score
12.	Knowledge	Score
13.	Attitude	Score

The AIS operates its program through 14 DCTs (Figure 1). To measure farmers' exposure 5-point ratings scales such as regularly, often, occasionally, rarely, and not at all were employed against 14 DCTs. And a score of 4,3,2,1 and 0 were assigned against the rating scales respectively. The exposure score of a respondent was calculated by all the scores obtained by his/her against the selected 14 DCTs of AIS. The exposure score of a respondent could range from '0' to '56' where '0' indicates very low exposure and '56' indicates high exposure towards DCTs of AIS. Based on exposure score, the respondents were grouped into four categories such as very low exposure (1-14), low exposure (15-28), medium exposure (29-42), and high exposure (>42).

To compare the level of exposure of 14 DCTs of AIS an Exposure Index (EI) was calculated by using the following formula: (%) EI = $\frac{Obtained\ EI\ Scores}{Highest\ Possible\ EI\ Scores} \times 100$

Further EI score was calculated using the following formula:

EI Score = $N_{re}\times4 + N_{of}\times3 + N_{oc}\times2 + N_{ra}\times1 + N_{na}\times0$

Where, EI= Exposure Index

N_{re} = No. of the respondents exposed to DCTs of AIS regularly

N_{of}= No. of the respondents exposed to DCTs of AIS often

N_{oc}= No. of the respondents exposed to DCTs of AIS occasionally

N_{ra}= No. of the respondents exposed to DCTs of AIS rarely

N_{na}= No. of the respondents not at all exposed to DCTs of AIS

As there were 80 respondents, so Exposure Index (EI) score could range from 0 to 320. Where '0' indicates no exposure and '320' indicates high/regular exposure. Based on EI (%) DCTs of AIS were ranked to

compare the level of exposure by the respondents.

Spearman Rank-Order Correlation was performed to assess the strength and direction of the association between two variables, especially when the data is non-linear or not normally distributed. This test provided a correlation coefficient indicating how strongly two variables are related, without assuming a linear relationship. Regression Analysis was conducted to determine the cause-and-effect relationship between variables and to quantify how changes in independent variables (such as education, farm size, or income) predict changes in a dependent variable (such as exposure to DCTs). Regression analysis goes beyond correlation by providing a mathematical model that allows for the prediction of the dependent variable based on changes in the independent variables, offering a clearer understanding of the magnitude and direction of these effects. By using both methods, researchers can get a comprehensive view of both associative strength and predictive power in the data.

A number of 7 problems were selected to determine the extent of problems in exposure to DCTs of AIS by the farmers (Figure 2). Each of the farmers was deliberately asked to identify the listed problems with severe, moderately severe, less severe, and not all rating scales. A score of 3, 2, 1, and 0 was assigned against each of the scales. The problems confronted score of a respondent was determined by summing up all the scores obtained by the respondent against the 7 problems in exposure to DCTs of AIS. The problems confronted score of a respondent could range from '0' to '21' where '0' indicates not at all and '21' indicates severe problems. Based on exposure score, the respondents were grouped into 3 categories such as low (1-7), medium (8-14), and high (>14).

To compare the level of extent of problems in the exposure of 14 DCTs of AIS Problem Confrontation Index (PCI) was calculated by using the following formula: (%) PCI =

$$\frac{Obtained PCI Scores}{Highest Possible PCI Scores} \times 100$$

Further PCI score was calculated using the following formula:

PCI Score = $N_s \times 3 + N_{ms} \times 2 + N_{ls} \times 1 + N_{na} \times 0$

Where, PCI= Problems Confrontation Index

N_s = No. of the respondents facing severe problem to DCTs of AIS severe

N_{ms}= No. of the respondents facing moderately severe problem to DCTs of AIS

N_{ls} = No. of the respondents facing less severe problem to DCTs of AIS

N_{na}= No. of the respondents facing no problem to DCTs of AIS is

As there were 80 respondents, so Problems Confrontation Index (PCI) could range from 0 to 240. Where '0' indicates not at all and '240' indicates too severe. Based on (%) PCI 7 problems to DCTs of AIS were ranked to compare the level of extent by the respondents.

3. Results and Discussion

3.1 Farmers' Exposure to Development Communication Tools of AIS

Identification of Development Communication Tools Exposed by the Farmers: The respondents (farmers) of the study exposed to 13 DCTs to different extent out of 14 DCTs AIS. Variation in exposure of the farmers' to DCTs of AIS was observed. However, the farmers were highly exposed to poster/sticker (65.93%) while they were less exposed to ICT laboratory (0.94%). Other development communication tools as exposed by the farmers were folder/leaflet/flipchart (64.69%), television program (54.06%), and agricultural fair (50.93%), AisTube (1.87%) and so on. Similar findings observed in (Hoque, 2007; Prathap and Ponnusamy, 2006).

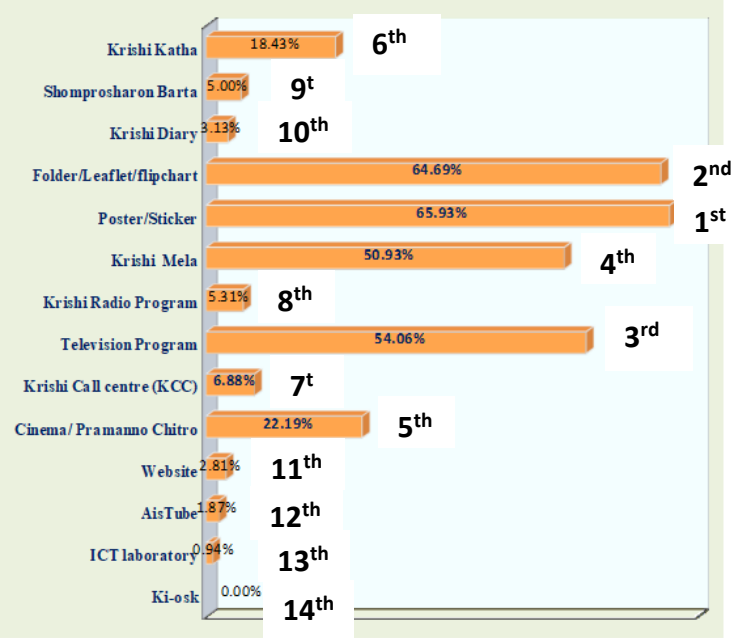

Figure 1: Graphical representation of development communication tools index of AIS

Extent of exposure to DCTs of AIS by the farmers: About three-fourth (72.5%) of the respondents had very low exposure whereas another one-fourth (27.5%) of the respondents had low exposure to DCTs of AIS (Table 3). Similar results were also found by (Hoque, 2007).

Table 3: Distribution of respondents according to their exposure to DCTs of AIS

Categories	Scores	Respondents(N=80)			Range		Mean	SD
		Number	Percentage		Min.	Max.		
Very low exposure	1-14	58	72.5		2	24	12.17	4.68
Low exposure	15-28	22	27.5					
Medium exposure	29-42	0	0					
High exposure	>42	0	0					
Total		80	100					

3.2 Selected Characteristics of the Respondents

About half (48.8%) of the respondents (farmers) fall into the middle-aged category compared to young-aged (31.3%) and old-aged (20%) groups. The majority (55%) of the respondents belonged to the secondary level of education category and maintained small sized family (57.5%). Above three-fourth (77.5%) of the farmers possessed small sized farm and half (50%) of the respondents belonged to low-income category. Most of researchers also found the similar result except family size where Islam in 2019 found 67.8 % of respondents and Shaikh et al., in 2010, found 44.4 % of respondents were from medium sized family (Islam, 2019; Shaikh et al., 2010).

Half (50.0%) of the respondents were highly experienced in farming. 37.5% and 36.3% of the respondents belonged to the early adopter and early majority category. Majority (77.5%) of the farmers belonged to medium extension contact compared to 18.8% and 3.8% of the respondents expressed low and high extension media contact respectively. Most researchers also found similar results in their respective study i.e. (Shaikh et al., 2010; Uddin, 2007; Hoque, 2007). But in innovativeness Islam in a study found 44.9 % of his respondents belonged to early majority category (Islam, 2019).

More than three-fifth (63.7%) of the respondents belonged to no organizational participation which is similar with (Hoque, 2007). However, it dissimilar with a study of (Islam, 2019; Uddin, 2007) Majority (63.7%) of the respondents holding medium cosmopolitanism which shows similarity with (Shaikh et al., 2010). But dissimilarity with studies of (Hoque, 2007; Uddin, 2007).

Majority (56.3%) of the respondents had medium knowledge about DCTs of AIS and 37.5% had low knowledge whereas 6.3% had high knowledge about DCTs of AIS. Most (85%) of the respondents had highly favorable attitude towards DCTs of AIS compared to very highly favorable attitude (15%) towards DCTs of AIS.

Table 4: Selected characteristics of the respondents

Selected Characteristics	Categories	Scores (Years)	Respondents (N=80)		Range		Mean	SD
			Number	Percentage	Min.	Max.		
Age	Young	≤35	25	31.2	25	73	41.93	10.48
	Middle aged	36-50	39	48.8				
	Old aged	>50	16	20.0				
Level of Education	Illiterate	0	2	2.5	0	16	8.11	3.64
	Primary	1-5	20	25				
	Secondary	6-10	44	55				
	Higher Secondary	11-12	9	11.25				
	>Higher Secondary	≥13	5	6.25				
Family Size	Small size family	1-4	46	57.5	3	7	3.00	1.06
	Medium size family	5-6	32	40				
	Large size family	≥7	2	2.5				
Farm Size	Landless	<0.02	1	1.3	0.01	3.12	0.621	0.45
	Marginal	0.02-0.20	10	12.5				
	Small	0.21-1.00	62	77.5				
	Medium	1.01-3.00	6	7.5				
	Large	>3.00	1	1.3				
Annual Income	Low income	≤150	40	50	50	350	157.93	66.195
	Medium income	151-300	38	47.5				
	High income	>300	2	2.5				
Farming Experience	Low	1-15	21	26.3	5	50	25.21	10.43
	Medium	16-30	40	50.0				
	High	>30	19	23.8				
Extension Media Contact	Low	1-12	15	18.7	3	29	16.68	4.91
	Medium	13-24	62	77.5				
	High	>24	3	3.8				
Organizational participation	No	0	51	63.7	0	5.00	0.65	1.10
	Low	1	16	20				
	Medium	2	8	10				
	High	>2	5	6.3				
Cosmopolitanism	Low	1-11	15	18.8	8	21	14.12	3.02
	Medium	12-17	51	63.7				
	High	>17	14	17.5				
Innovativeness	Laggard	1	2	2.5				
	Late majority	2	12	15				
	Early majority	3	29	36.3				
	Early adaptor	4	30	37.5				
	Innovators	5	7	8.8				
Training Exposure	No	0	25	31.25	0	4	1.2	1.06
	Low	1	25	31.25				
	Medium	2-3	28	35				
	High	≥4	2	2.5				
Knowledge about Different DCTs tools of AIS	Low	1-10	30	37.5	4	24	12.55	4.96
	Medium	11-20	45	56.3				
	High	21-30	5	6.3				
	Very High	>30	0	0				

Table 4 (Cont.): Selected characteristics of the respondents								
Attitude of respondents towards the use of DCTs of AIS	High Unfavorable Attitude	1-26	0	0	80	120	96.56	8.34
	Unfavorable Attitude	27-52	0	0				
	Moderate Favorable Attitude	53-78	0	0				
	Highly Favorable Attitude	79-104	68	85				
	Very Highly Favorable Attitude	>104	12	15				

3.3 Relationship (Correlation [ρ]) Between the Characteristics of the Respondents and their Exposure to DCTs of AIS

Table 5 revealed that level of education, farm size, annual family income, cosmopolitanism, innovativeness, extension contact, organizational participation, training, knowledge and attitude was positively correlated with the exposure to AIS development communication tools. However, age, family size, farming experience of farmers having non-significant relationship with the DCTs of AIS. Most of studies found similar findings i.e. (Islam, 2019; Asaduzzaman et al., 2016; Rashid and Akanda, 2015; Bhuyian et al., 2013). Thus, the present findings show consistency with all these findings.

Table 5: Relationship between the characteristics of the respondents and their exposure to DCTs of AIS

Focus Variable (Dependent variable)	Characteristics (Independent variables)	Correlation coefficient
		Spearman (ρ)
Farmers' Exposure to Development Communication Tools of AIS	1. Age	-0.129 NS
	2. Level of Education	0 .486**
	3.Family Size	0.037 NS
	4. Farm Size	0.241*
	5. Annual family income	0.485**
	6. Farming experience	-0.178 NS
	7. Cosmopolitanism	0.279*
	8.Innovativeness	0.456**
	9. Extension contact	0.500**
	10. Organizational participation	0.506**
	11. Training	0.433**
	12. Knowledge	0.609**
	13. Attitude	0.513**

NS= non-significant **. Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

3.4 Quantification of the Contribution (Regression) of the Selected Characteristics of farmers to their Exposure to DCTs of AIS

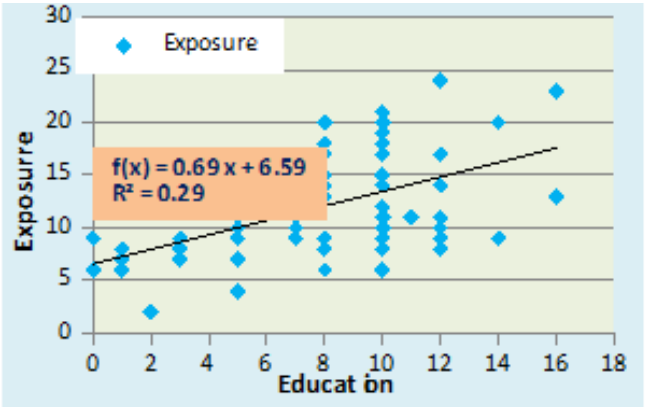

Figure 2: Farmers' level of education and their exposure to DCTs

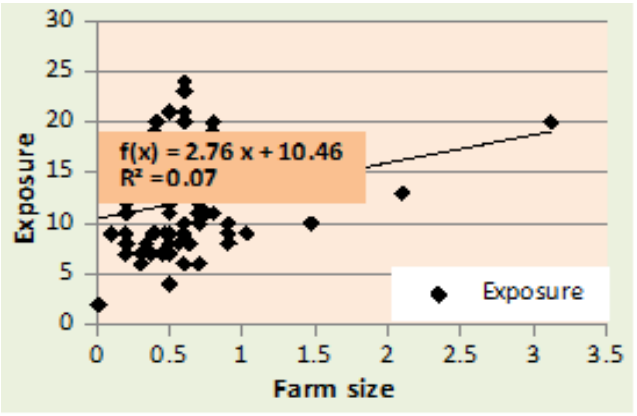

Figure 3: Farmers' farm size and their exposure to DCTs

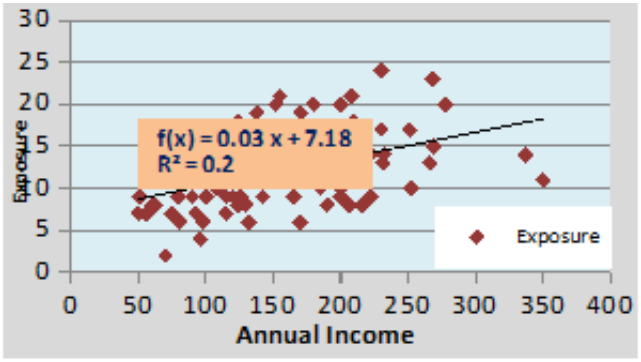

Figure 4: Farmers' Annual Income and their Exposure to DCTs

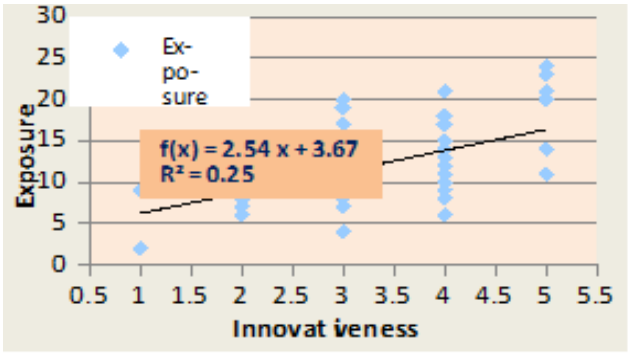

Figure 5: Farmers' innovativeness and their exposure to DCTs

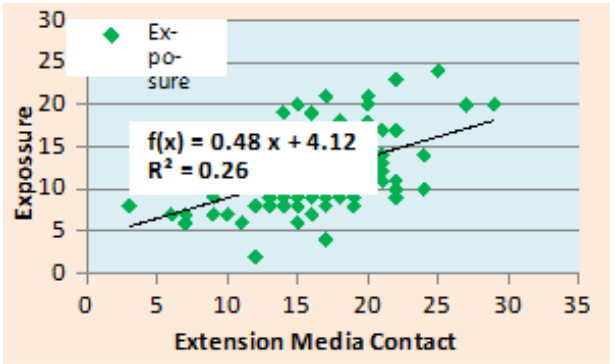

Figure 6: Farmers' extension media contact and their exposure to DCTs

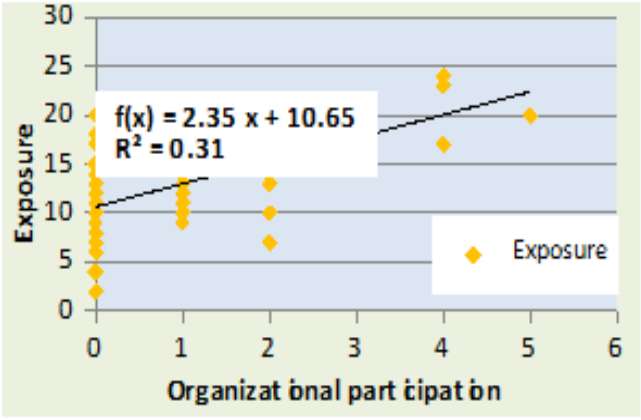

Figure 7: Farmers' organizational participation and their exposure to DCTs

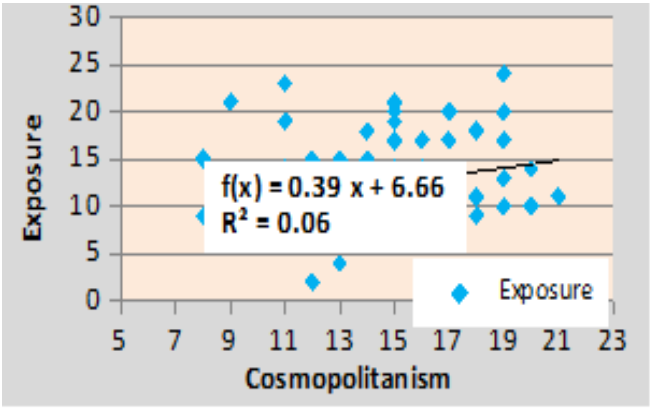

Figure 8: Farmers' cosmopolitanism exposure and their exposure to DCTs

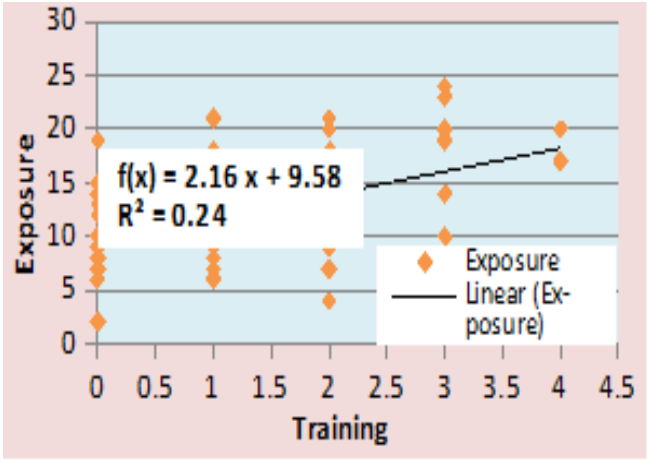

Figure 9: Farmers' training and their exposure to DCTs

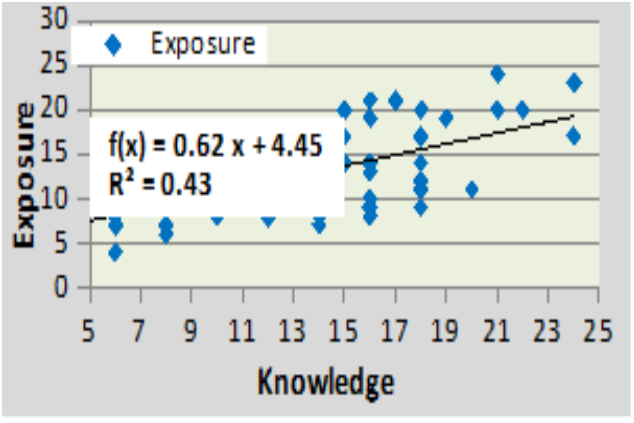

Figure 10: Farmers' knowledge about DCTs and their exposure

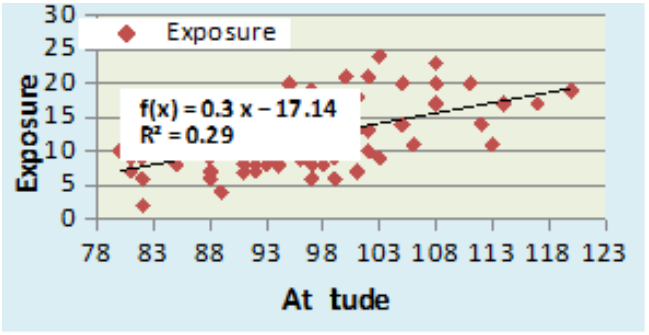

Figure 11: Farmers' attitude towards DCTs and their exposure

The analysis shows that higher education levels among farmers are positively associated with their exposure to DCTs. More educated farmers are more likely to seek out, understand, and use DCTs in farming decisions. Larger farm sizes are linked to higher exposure to DCTs, likely because farmers managing larger farms tend to seek more efficient methods of managing resources, and DCTs offer tools for that. Wealthier farmers appear more exposed to DCTs. This suggests that increased income provides the means to afford technology and access digital tools. More innovative farmers, those willing to adopt new ideas and practices, are shown to have higher exposure to DCTs. This implies that a forward-thinking mindset is key to DCT adoption. Farmers with greater media exposure through extension services are more likely to be familiar with DCTs. This highlights the role of information dissemination through media in promoting technological engagement (Regression analysis).

Farmers involved in local organizations have higher DCT exposure, possibly because such groups provide access to information and training. Farmers with a broader worldview, who interact with a more diverse set of ideas and people, tend to have more exposure to DCTs. Cosmopolitanism might enhance openness to external influences and innovations. Training programs have a strong positive effect on DCT exposure, showing that providing structured learning opportunities can significantly enhance farmers' technological engagement. The more knowledgeable farmers are about DCTs, the more likely they are to use them. This suggests that awareness and understanding are critical for DCT adoption. A positive attitude toward technology is highly correlated with higher DCT exposure, indicating that beliefs and perceptions about the usefulness of technology influence adoption rates.

These findings show a clear relationship between farmers' characteristics and their interaction with DCTs. Factors like education, farm size, income, and openness to innovation play significant roles in determining a farmer's exposure to modern agricultural technologies. This insight can inform policies and interventions aimed at increasing technology adoption among farmers, focusing on enhancing education, income, and extension services.

The R-squared values across these graphs indicate varying degrees of the relationship between each characteristic and exposure to DCTs. Stronger R-squared values (closer to 1) indicate a more substantial contribution of a particular characteristic to the exposure to DCTs. Thus, characteristics such as education, income, innovativeness, training, and knowledge have strong predictive power in explaining farmers' exposure to DCTs. Lower R-squared values might have a weaker relationship but still provide insights into how these factors influence exposure. It could be concluded based on the R-squared values that those with higher values reflect a stronger correlation and greater influence on exposure to DCTs.

3.5 Problems Confronted by the Farmers in Exposure to Development Communication Tools of Agriculture Information Service

Identification of problems confronted in exposure of DCTs of AIS by farmers: The respondents (farmers) of the study confronted 7 problems related to the exposure of DCTs of AIS to different extents. There were variations in the problems where highest index found was 90.00% and the lowest index was 38.30%. Unavailability of mobile, TV, radio was the highly confronted problem (90.00%) followed by lack of resources (87.95%), internet (82.08%) and transportation facilities (78.30%) while electricity failure (45.41%), financial crisis (38.30%) and illiteracy (26.60%) were some of less confronted problems (figure 12). The findings alligned with (Derso et al., 2014; Obidike, 2011)

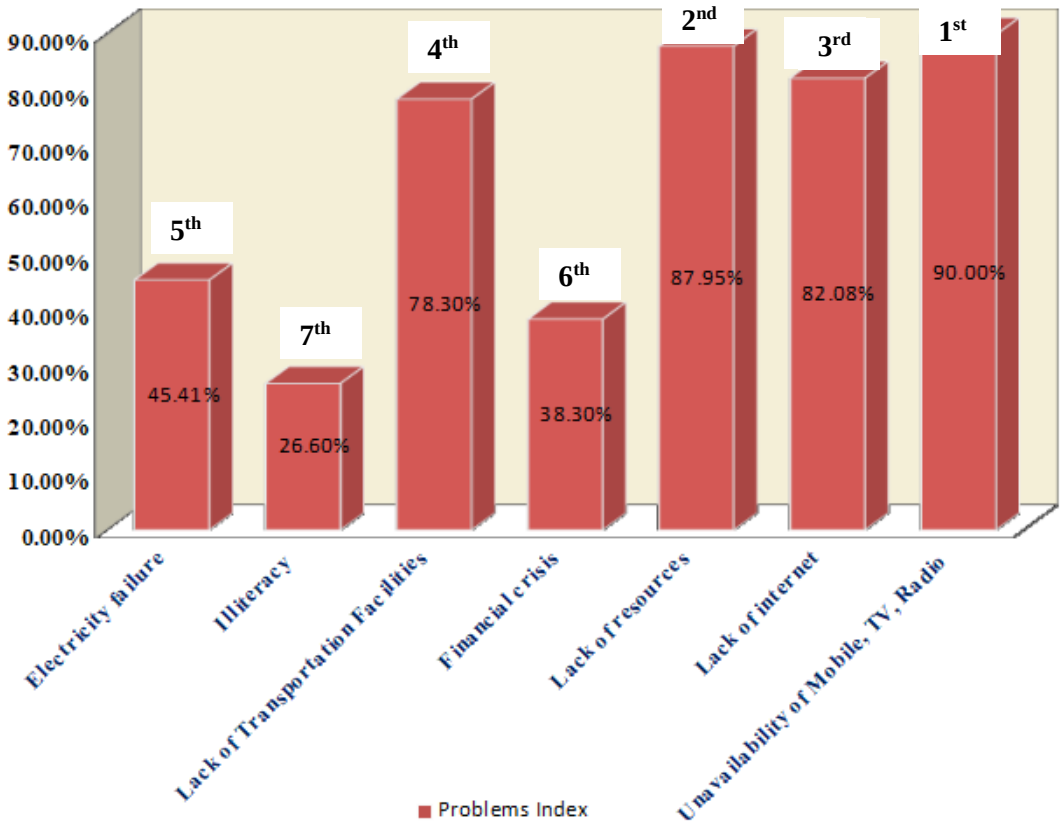

Figure 12: Rank Index of the confronted problems in exposure of DCTs by the farmers

Extent of Problems Confronted in Exposure to DCTs of AIS: The extent of problems scores of the respondents ranged from 5-20 with a mean of 13.51 and a standard deviation of 3.80. The distribution of farmers according to their extent of exposure to DCTs of AIS is shown in Table 6.

Table 6: Distribution of respondents according to their problems confronted in exposure to DCTs of AIS

Categories	Scores	Respondents (N=80)			Range		Mean	SD
		Number	Percentage		Min.	Max.		
Low	1-7	5	6.25		5	20	13.51	3.80
Medium	8-14	40	50.00					
High	>14	35	43.75					
Total		80	100					

Data presented in Table 6 revealed that half (50.00%) of the respondents had a medium extent of the problem and 43.75 % had a high extent of the problem while few of them (6.25%) had a low extent of the problem in exposure towards DCTs of AIS**.** Similar findings were observed in (Sireesha et al., 2014; Cecchini, 2003).

4. Conclusions

Through this research, an effort is attempted to study the AIS beneficiaries and the role of AIS in disseminating knowledge on agriculture. The purpose of the study is to estimate an understanding of the development communication tools used in receiving information. Though the farmers of the study were exposed to 13 DCTs out of 14 DCTs of AIS, their exposure was not satisfactory. The majority of them (72.5%) belonged very low exposure and the other one-fourth (27.5%) of the respondents belonged low exposure category towards DCTs of AIS. The main factors that hindered the farmers from exposure was the unavailability of mobile, TV, radio, and other communication tools. Half (50%) of the respondents confronted medium extent of problems in exposing DCTs of AIS**.** In conclusion, despite being exposed to most development communication tools (DCTs) of AIS, the farmers' overall exposure remained unsatisfactory, with the majority falling into the very low exposure category. The key barriers to better engagement included the lack of access to essential communication tools like mobile phones, televisions, and radios, highlighting the need for improved infrastructure and resources to enhance farmers' use of AIS.

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