



EFFECTIVENESS OF SELECTED MASS MEDIA IN AGRICULTURAL TECHNOLOGY TRANSFER TO THE FARMERS OF BANGLADESH

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ABSTRACT

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The role of mass media in dissemination of farm information to the farmers is crucial. Thus, the study was undertaken to determine the effectiveness of selected mass media in agricultural technology transfer to farmers of Bangladesh and identify the influential factors affecting the effectiveness of mass media in technology transfer to farmers. The study was conducted in three villages of Gouripur sub-district under Mymensingh district in Bangladesh. One hundred ten farmers were interviewed using a structured questionnaire for data collection during the period of 15 May to 15 June, 2016. Both descriptive and inferential statistics were used to analyze the collected data. Results show that 62.7 per cent of the farmers perceived that effectiveness of mass media in technology transfer was low, while 31.8 per cent and 5.5 per cent of them perceived the issue as "moderately effective" and "highly effective", respectively. Television was most popular mass media compared to radio, leaflet, poster and farm magazine based on the farmers' responses. Out of eight characteristics, farmers' education, extension contact and use of media had positively significant with the effectiveness of mass media. Multiple regression analysis revealed that 39.3% of the total variation in perceived effectiveness of mass media explained by two variables, namely education and use of media and identified as influential factors affecting the effectiveness of selected mass media.

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INTRODUCTION

Mass media in agricultural information dissemination generally, are useful in reaching a wide audience at a very fast rate (Swanson and Rajalathi, 2010). These are useful as source of agricultural information to farmers and as well constitute methods of notifying farmers of new developments and emergencies. They could equally be important in stimulating farmers' interest in new ideas and practices (Ani et al. 1997). To a large extent, mass media serve as a veritable instrument for information dissemination in Agriculture. Food and Agricultural Organization of the United Nations (FAO, 2001) reported that in many developing countries, wide adoption of research results by majority of farmers remains quite limited. Efficient use of mass media can be helpful of minimizing the prevailing information gap in agricultural arena. In Bangladesh, various mass communication media are being used to transmit agricultural information to farmers in line with national policy on agriculture. While mass media can be defined as a system that provides information to many people (Sylvia, 2004). Both print and electronic media are included as mass media while print media include circulars posters, leaflets, bulletin, newspapers and journals etc, and the electronic media consist of Television, Radio, Internet, Video and Telephone (Shuwa et al. 2015; Ifenkwe and Ikpekaogu, 2012). Mass media are the essential elements needed for effective transfer of technologies that are designed to boost up agricultural production. While mass media particularly radio, television cell phone etc, have been playing significant role to provide a fast information and knowledge about the agriculture in global arena. Better distribution of mass media can increase agricultural attractiveness and providing more information to stakeholder for increasing production (Rao, 2007). Mass media have potentiality to provide timely and reliable information on weather, input prices, and marketing of the products (Chapman and Slaymaker, 2002) to the stakeholders especially the farmers. In Bangladesh, Islam and Gronlund (2010); Asaduzzaman et al. (2010); Cho and Tobias (2011) conducted some preliminary analyses and explored potentials of using mass media in marketing agricultural products. Osman (2014) conducted a study to determine the extent of use of ICT based media by the farmers in receiving agricultural information. Impact of mass media on farmers' agricultural production in Borno State was conducted by the Shuwa et al 2015.

Although a number of studies have already been conducted in Bangladesh on use of different mass media in technology transfer to farmers (Asif, 2016; Sharmin, 2013), study on effectiveness of these media particularly in agricultural area is scarcely available. However, no systematic study is available on the aspects of effectiveness of mass media in receiving technical information as well as technology transfer to the farmers. In order to fulfill the present information gap, the study was undertaken by the researchers. The major objectives of the study were to determine the effectiveness of mass media in agricultural technology transfer to the farmers and to identify the factors influencing the effectiveness of mass media in technology transfer to farmers.

MATERIAL AND METHODS

Study area, population and sampling

The study was conducted at Gauripur upazila (sub-district) under Mymensingh district of Bangladesh. In specific, three randomly selected villages, namely Charsrirampur, Chondopara and Payra in Dohakhola union of Gouripur upazila were the location of the study. The total number of the farm family heads (367) of the three selected villages constituted the population of the study. Thirty percent (30%) of the farm family heads from each of the three selected villages were randomly selected as the sample of the study. Thus, a total of 110 farmers constituted the sample for the study.

Selection and measurement of explanatory and focus variables

The explanatory variables of the study were eight selected characteristics of the farmers. Opinion on effectiveness of the selected mass media was given by the farmers. Therefore, farmers' personal characteristics such as age, education, household size, farm size, annual family income, organizational participation, extension contact and use of media were taken as explanatory variables of the study. Most of the explanatory variables were measured by developing scales based on the raw scores. Effectiveness of

selected mass media in technology transfer was the focus variable of the study. While effectiveness is defined as the influence or capacity or validity of something produce the expected results. Farmers' response on effectiveness of selected mass media was measured using a 4 - point rating scale while score of 3, 2, 1 and 0 was assigned to indicate extent of effectiveness as highly effective, moderately effective, low effective and not at all respectively. The same measuring scale was also used by other researches to determine the effectiveness (Majdyan, 1996; Amin et al. 2013). Respondent's obtained scores of all (5) selected mass media (Radio, Television, Poster, Farm Magazine and Leaflets) were added to compute his/her total score and could range from 0 to 15. While score '0' indicate no effective and '15' indicate highly effective. Finally, the respondents were categorized into three categories according to their effectiveness responses (see Table 3). Both descriptive and inferential analyses were used to analyze the collected data. A co-efficient of correlation was used to understand the relationship between explanatory variables and focus variable while multiple regression models was used to quantify the contribution of the explanatory variables to focus variable effectiveness of the selected mass media.

Data collection

The empirical data were collected through face to face interview by using a pre-tested structured questionnaire during the period of 15 May to 15 June, 2016.

RESULTS AND DISCUSSION

Descriptive information of the farmers

The individual characteristics of the respondents, namely age, education, household size, farm size, annual family income, organizational participation, extension contact and use of media were considered as the explanatory variables of the study. Salient features of the characteristics and basic statistical value of respondents have been presented in Table 1 which is self-explanatory.

Table 1. Descriptive statistics and salient features of the farmers

Characteristics	Scoring system	Range		Mean	Standard Deviation
		Possible	Observed		
Age	Years	Unknown	22-75	45.45	12.08
Education	Years of schooling	Unknown	0-18	6.31	4.57
Household size	No. of members	Unknown	2-12	5.16	1.89
Farm size	Hectares	Unknown	0.16-3.95	0.80	0.76
Annual family income	'000' Tk.	Unknown	78.92-616.09	230.77	90.87
Organizational participation	Scale score	Unknown	0-54	10.06	8.74
Extension contact	Scale score	0-36	1-20	8.95	4.23
Use of media	Scale score	0-15	1-10	3.51	2.41

However, it is indicated that average level of education of the sample was just passed primary level (Class six) which might be one of the limitations of the understanding the using of mass media. The average farm size (0.80 ha) of the respondents also seem to be small farmer while families sized of the farmers were 5.16 which is more than the national average of 4.50. The average annual income of the farmers in the study area was BDT 2, 30,770 (\$2,884.63 US), which is more than the national average of household income BDT 1, 37,748 (\$1721 US) (HIES, 2010). The similar findings found in the study conducted by Haq (2016).

Use of selected mass media by the farmers

The results presented in Table 2 indicated that nearly almost all farmers (97.3 percent) had no use of radio whereas similar trend shows in case of farm magazine, poster and leaflets. But, Television was the popular mass media as a significant numbers of farmers (94.5%) have been using in receiving agricultural information. Television is audio visual media, available, relatively cheaper and easily understandable of the programmes especially agriculture programs that have been broadcasting were may be the reason of popular media. Similar finding was found by the Prathap and Ponnusamy (2006); Age et al. (2012). Moreover, it was also observed during data collection while farmers were watching the television not only at home but also at tea stalls available on the street and or at market. The similar studies were conducted by the Njoku (2016) and Mirani (2013) while radio, television etc are played an important role in technology transfer. Overall extent of selected mass media used by the farmers has been presented in Table 2.

Table 2. Farmers' category according to their use of selected mass media

Mass media	Category (0 to 3 scale score)	Frequency (n=110)	Percent	Mean	Standard Deviation
Radio/community radio	Not at all (0)	107	97.3	0.03	0.16
	Rarely (1)	3	2.7		
	Less frequently (2)	0	0		
	Regularly (3)	0	0		
Television	Not at all (0)	6	5.5	1.86	0.84
	Rarely (1)	29	26.4		
	Less frequently (2)	49	44.5		
	Regularly (3)	26	23.6		
Farm magazine	Not at all (0)	70	63.6	0.66	0.97
	Rarely (1)	13	11.8		
	Less frequently (2)	21	19.1		
	Regularly (3)	6	5.5		
Poster	Not at all (0)	65	59.1	0.46	0.60
	Rarely (1)	39	35.5		
	Less frequently (2)	6	5.5		
	Regularly (3)	0	0		
Leaflet/booklet	Not at all (0)	63	57.3	0.49	0.62
	Rarely (1)	40	36.4		
	Less frequently (2)	7	6.4		
	Regularly (3)	0	0		

Effectiveness of mass media in receiving agricultural information as perceived by the farmers

The observed scores of effectiveness of mass media in technology transfer ranged from 2 to 10 against the possible range of 0 to 15. The average and standard deviation were 5.21 and 1.78, respectively. Based on their responses about the effectiveness of mass media scores, the respondents were classified into three categories as shown in Table 3.

Table 3. Effectiveness of selected mass media in receiving agricultural information as perceived by the farmers

Categories of farmers (score)	Number	Percent	Mean	SD
Low effective (up to 5)	69	62.7	5.21	1.78
Moderately effective (6-8)	35	31.8		
Highly effective (above 8)	6	5.5		
Total	110	100		

Data presented in Table 3 revealed that a significant numbers (62.7 per cent) of the farmers perceived mass media as low effective and 31.8 per cent of them perceived mass media as moderately effective. While only 5.5 per cent farmers were found who opined that mass media were highly effective in transferring technical information to them. Farmers with low literacy, low knowledge, low interactions, low communication to extension agent, etc. were may be the responsible factors having low effectiveness of the mass media. Besides, respondents' age may also the another reason having low effective of mass media as most of the respondents' seems to be middle aged while young people generally have the more interest to use the mass media.

Relationships of selected characteristics of the farmers and their opinion on effectiveness of mass media

A total of eight selected characteristics of the farmers were considered for understanding the relationships between those characteristics and their perceived effectiveness of mass media. To test the relationship, Pearson's correlation coefficients were computed as the results have been presented in Table 4.

Table 4. Correlation between farmers' characteristics and effectiveness of mass media

Focus variable	Selected personal socioeconomic characteristics (Table formation?)	Correlation co-efficient (r) values
Effectiveness of mass media in technology transfer to farmers	Age	-.148
	Education	.480**
	Household size	.063
	Farm size	.090
	Annual family income	.143
	Organizational participation	.134
	Extension contact	.311**
	Use of media	.587**

** Significant at 1% level

Out of eight characteristics farmers' Education, extension contact and use of media had significant and positive relationship with their perceived effectiveness of mass media. On the other hand, age, household size, farm size, annual family income and organizational participation of the farmers did not show any significant relationship with their perceived effectiveness of mass media. A linear multiple regression analysis was done with the explanatory variables and effectiveness of selected mass media which is explained in the following section.

Contribution of explanatory variables to farmers' perceived effectiveness of mass media

A linear multiple regression analysis was computed in order to determine the contribution of explanatory variables to their perceived effectiveness of mass media. A general full regression model analysis was run with all explanatory variables. The findings of the regression analysis are presented in Table 5.

The regression analysis indicates that 39.3% of the total variation of the focus variable (farmers' perceived effectiveness of mass media) explained by two variables, namely education and use of media, while the remaining 60.7% remain unexplained. This indicating that education and use of mass media were the vital factors that affecting the effectiveness of mass media in technology transfer to farmers. The model also indicates that education was positively and significantly correlated to farmers' perceived effectiveness of mass media at 5% level. This means that the farmers' having higher education had more likelihood to understand effectiveness of mass media in technology transfer as compared to those farmers having less education. This is because of the fact that education influences the farmers to understand well about the importance and utility of mass media. Use of media and effectiveness of mass media were showed positive and significant relationship at 1% level. The probability of perceived effectiveness of mass media is higher for those farmers who are the higher users of mass media. Uddin (2007); Rehman et al. (2011); Sheybani and Soleimanpour (2015) found the similar result in their respective studies.

Table 5. Regression coefficient of farmers' opinion on effectiveness of mass media with their selected characteristics

Explanatory variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.708	.720		5.150	.000
Age	-.010	.012	-.065	-.787	.433
Education	.077	.040	.199	1.952	.050
Household size	.104	.079	.111	1.329	.187
Farm size	-.115	.214	-.050	-.540	.591
Annual family income	-.001	.002	-.028	-.291	.772
Organizational participation	-.024	.018	-.117	-1.313	.192
Extension contact	.008	.043	.019	.190	.850
Use of media	.376	.092	.510	4.105	.000

n = 110, R² = .393, R = .627 F-value = 8.190**

** Significant at 1% level

CONCLUSION AND RECOMMENDATIONS

Majority of the farmers considered the mass media as low effective to technology transfer. Thus, necessary interventions such as campaign on mass media, awareness building, incentives for mass media user, training etc. should take initiatives by the government as well as non-government agencies to increase the effectiveness of the mass media. Television was the popular mass media as perceived by the farmers among other selected mass media. Therefore, most of the cases, information related to technology transfer to farmers should be communicated using this media. Education, extension contact and use of media had significant relationships with farmers' responses on effectiveness of mass media. Among the significant variables education and use of media were identified as the influential factors to the effectiveness of mass media as perceived by the farmers and confirmed by the regression model. Therefore, policy makers should consider these variables while taking the policy to make the mass media effective in agricultural development arena.

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