

**Research Article**

## **Assessment of Ultimate Agricultural Information Source Users' Satisfaction for Agricultural Development**

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### **ABSTRACT**

The study was conducted in six different villages of Cooch Behar district in West Bengal. Hundred respondents were selected randomly from an exhaustive list of farmers who have continuous exposure on existing information sources. Data were collected through personal interview method in designed structured interview schedule. Statistical tools like coefficient of correlation and multiple regressions were used for analysing the data. The result reveals that 49.0% of the respondents expressed medium level of satisfaction. Variables namely  $X_2$ ,  $X_{15}$  and  $X_{19}$  are positive and significant, whereas the variable  $X_1$  is negative and significant. The variables  $X_3$  and  $X_{18}$  are significantly negative, whereas other variables, that is,  $X_{13}$ ,  $X_{15}$  and  $X_{19}$  are significantly and positively contributing towards characterising the dependent variable. Farmers' family with high level of education status shown lesser interest to consult with various information sources. Hence, the study reveals that farmers had medium level of satisfaction with existing information sources.

**Keywords:** Information utilisation, Users' satisfaction, Timeliness, Risk preference, Agricultural growth and development

## INTRODUCTION

In the era of information transformation and the translation of research into use can be emphasised for generation of knowledge and wisdom towards sustainable agricultural development. Now information technology plays the pivotal role in every aspects of human activity in socio-cultural milieu. In fact, information has become the driving force behind any development strategy. Every person needs information for his/her decision-making appropriately. Therefore, both the quantity and quality of information would act as a determining factor in case of achieving success in any effort. According to Kemp (1976), 'information has been described as the fifth need of man ranking after air, water, food and shelter'. Similarly, in agricultural environment, relevant and timely information helps farmers' community to take right decision to sustained growth of agricultural activity (Bachhav, 2012). Consequently, quality of rural life also can be improved by quality information enabling better decision-making (Milovanovic, 2014). So, agricultural information provision is the central element of advanced agricultural system, as well the fundamental and essential promoter for agricultural development, helping for betterment of the rural farmers (Yaseen *et al.*, 2016).

In India, the task of providing agriculture-related information to farmers or farming community is primarily vested with the government agencies or the Public Extension System. Agricultural extension system provides knowledge, advisory and education to the farmers in their decision-making, enabling them to clarify their own goals and possibilities and stimulates in desirable agricultural developments. Agricultural extension services provide critical access to the knowledge, information and technology that farmers require to improve the productivity and thus improve the quality of their lives and livelihoods (Fu and Akter, 2009). Both in rural and urban areas, majority of the people are dependent on Information and communication technologies (ICTs) for information gathering and sharing. ICTs have proved to be a prominent key to improve both agricultural practices and farmers' livelihood (Tantisantisom, 2012). Information may function as a tool for acquiring knowledge, for making decisions and for communicating (Kalusopa, 2005). In India, most of the rural area the availability of information sources for providing agricultural to farmers is very poor. ICT on agricultural extension services delivery in remote areas probably due to the lack of reliable data on outcome variables, as well as variations across extension and non-extension communities and between users and non-users in observable and unobservable factors (Aker, 2010). It is seen that information communication sources which are more diversified, knowledge-intensive

and demand-driven can enhance user satisfaction and thus more effective in meeting farmers' information needs. The use of ICTs for agricultural extension is one way of addressing the information needs of farmers (Kameswari, 2011).

In many rural areas, maximum information are obtained by the farmers and farming community through Village Level Workers (VLW), Demonstrators, Village panchayat, progressive farmers, etc. Extension workers are the most important source in transmitting technology to users (Sharma, 2003). Recently, the mobile is one of the information sources which passes or shares the information among the people with less time. Extension services enable to gather, store, retrieve and disseminate a broad range of information needed by small producers. In the state of Kerala, India, adoption of mobile phones by fishermen helped in reducing price dispersion, elimination of waste, and adherence to one price, thereby benefitting both fishermen and traders (Jensen, 2007). At present, mobile phones are acting as the fastest benefiting information sources in agriculture to the farmers in different area of the country. Mobile communication technologies have become gradually more important in many parts of the world, especially in improving the delivery of information about agriculture (Munyua *et al.*, 2008). In rural areas, most of the farmers and farm women are medium and marginal and radio is the common source for them in gathering information and entertainment in each hold. Radio, television, publications, demonstrations, tele-conferencing and Internet technology have all been used to accomplish this (Singh *et al.*, 2003). In India, the facility of the Internet is very poor in rural area comparing with the cities and town. The Internet plays a major role in the transfer of high-tech agriculture technologies from global pocket to farmers' field (Shantanu *et al.*, 2002). For developing countries, the use of the Internet in farm decision-making is very much less. Simon (2002) observed that only 12% of farmers used this technology, and the majority of them used traditional technologies like radio (77.3%) and newspapers (11.3%). Sharma (2003) pointed out that quick dissemination of technological information from the Agricultural Research System to the farmers in the field and reporting of farmers' feedback to the research system is one of the critical inputs in transfer of agricultural technology.

But, like other systems, agricultural information system also faces challenges to effectively transfer the information to the farmers. The major hurdles comprise inappropriate system of agriculture information management, unworthy information provider, less interest of farmer and un-consistent farming community development (Li and Baoguo, 2011). Despite new technologies in agricultural sectors, farmers

have to face the problem of proper channel media or resources to make them aware of current technologies within a period of time uses in agricultural practices because of tremendous gap between knowledge production and knowledge utilisation by the farmers (Kumar, 2014). Another important problem is that so much information from variety of sources on a single topic often faces the question of reliability and accuracy of the information and its suitability to the real life situation of the farmers. Therefore, even after accessing so many information sources, farmers are often discontent with one or more information sources due to the inability of those sources to address the information needs properly. Here, lies the importance of computing the satisfaction of the farmers after utilising the information source.

Under such a research niche, this study was conceptualised and conceived to analyse the farmers' satisfaction with the existing agricultural information sources they consult with and thereby identify the attributes associated with them which significantly influence their satisfaction level with those information sources.

## **METHODOLOGY**

The study is conducted in the villages of Charakpara, Katamari, Elajanerkuthi of Cooch Behar-I block and Gopalpur, Dhang Dhingguri of Cooch Behar-II block under Cooch Behar district in West Bengal. Purposive as well as multistage and random sampling procedures were followed for selection of the final respondents. The district and block were selected purposively. A total number of 100 respondents were selected from an exhaustive list of farmers who have continuous contact with existing information sources in the locality identified with the help of the local people, local administrators, etc. The satisfaction level of the ultimate agricultural information source users that means the farmers was conceptualised as the predicted variable and the 19 other attributes associated with the farmers were delineated as the predictor variables in this research work. The data were collected with the help of a structured interview schedule through personal interview method. The statistical tools like coefficient of correlation and multiple regressions were the key analysers for drawing a definite conclusion from the collected data.

## **RESULTS AND DISCUSSION**

Table 1 shows that majority of the respondents expressed medium level of satisfaction after accessing various information sources with score 36.7–44.3 (49%) followed by low level of satisfaction with score 29–36.6 (37%) and high level of

**Table 1: Distribution of Respondents According to Their Information Source Users' Satisfaction**

Category	Score	Frequency	Percentage	Statistics
Low	29–36.6	37	37	Range=29–52
Medium	36.7–44.3	49	49	Mean=38.65
High	44.4–52	14	14	SD=4.61 CV=11.92%

satisfaction with score 44.4–52 (14%), respectively. The mean score of total distribution is 38.65 and standard deviation is 4.61. The coefficient of variation value within the distribution is 11.92% signifies very high level of the distribution for the variable 'information source users' satisfaction'. The result reveals that there is a medium level of satisfaction among the end users of the agricultural information sources that means the farmers and hence, efforts should be initiated to explore various factors associated with their satisfaction after using those information sources.

Table 2 reflects the Pearson's coefficient of correlation among the dependent variable, information source users' satisfaction with the 19 casual variables. The result shows that the variables namely education ( $X_2$ ), decision-making ability ( $X_{15}$ ) and timeliness of information source ( $X_{19}$ ) are positively and significantly associated with the dependent variable, information source users' satisfaction. On the contrary, the variable age ( $X_1$ ) is negatively and significantly associated with information source users' satisfaction.

### Age and Information Source Users' Satisfaction

In this study, the variable 'age' has been conceptualised as the chronological age of the respondent. Age plays crucial role in shaping the information seeking behaviour of individuals. In general, the younger people are more curious about the latest technologies which inspire them to access various information sources to get up-to-date themselves. On the contrary, the aged farmers are still reluctant to access various information sources as they are habituated to the traditional way of information collection from neighbours, friends, relatives, etc. which has ultimately reduced their interest in using modern information technologies. In this study, it is also found that young farmers are mostly trying diverse information sources because they are satisfied with the information they get form those sources. This may be the plausible reason behind the significant and negative association between variable age and the dependent variable, information source users' satisfaction.

**Table 2: Correlation Coefficient of the Information Source Users' Satisfaction (Y<sub>1</sub>) with 19 Independent Variables**

Variables	Coefficient of correlation (r)
Age (X <sub>1</sub> )	-0.271**
Education (X <sub>2</sub> )	0.216*
Family Education Status (X <sub>3</sub> )	-0.124
Major occupation (X <sub>4</sub> )	0.131
House Type (X <sub>5</sub> )	0.170
Social Participation (X <sub>6</sub> )	-0.013
Material possession (X <sub>7</sub> )	0.049
Land Holding (X <sub>8</sub> )	-0.013
Farm power (X <sub>9</sub> )	0.052
Livestock possession (X <sub>10</sub> )	0.105
Extension contact (X <sub>11</sub> )	-0.022
Mass media exposure (X <sub>12</sub> )	-0.144
Risk Preference (X <sub>13</sub> )	0.161
Economic Motivation (X <sub>14</sub> )	-0.026
Decision-making ability (X <sub>15</sub> )	0.248*
Attitude towards use of information sources (X <sub>16</sub> )	0.064
Utilisation pattern of information sources (X <sub>17</sub> )	0.108
Usefulness of the information source (X <sub>18</sub> )	0.051
Timeliness of the information source (X <sub>19</sub> )	0.243*

\*\*Significant at 1% level; \*Significant at 5% level

### Education and Information Source Users' Satisfaction

Education is the process through which one individual can gather knowledge and use this knowledge in his/her own situation to solve their problems. In other words, education exposes people to variety of situations which, in turn, help them become innovative and creative in addressing critical issues. Similarly, education stimulates inquisitiveness within an individual and motivates him/her to collect information from wide range information sources to interpret the situation correctly. In this study, it has been found that the farmer who have higher level of education are in well acquaintance with various information sources related to agriculture and they have also agreed that these sources can effectively satisfy their information needs. Therefore, the variable education shows significant and positive relationship with the dependent variable, information source users' satisfaction.

### **Decision-Making Ability and Information Source Users' Satisfaction**

Decision-making is conceptualised as the cognitive process which leads to the selection of a belief or a course of action among several alternative possibilities. Therefore, the values and preferences of the decision-maker play an important role in case of making any decision.

Similarly, identifying and selecting any one or a combination of various information sources for getting accurate and up-to-date information related to farming also requires sound decision-making ability. In this study, it has been observed that the farmers with higher ability to make appropriate decision can make effective use of agricultural information collected from different information sources in their field which, in turn, satisfies their information needs for betterment of their farming practices. Hence, the variable decision-making ability is significantly and positively associated with the dependent variable, information source users' satisfaction.

### **Timeliness of the Information Source and Information Source Users' Satisfaction**

Timeliness of the information sources has been conceptualised as the ability of the information sources to provide the needed information to the end users at the time when these information are actually required by them for its effective use in their working situation. Timeliness also emphasises on the quality of the information provided by the sources. Therefore, timeliness encompasses not only the timely delivery of information but also the accuracy of that information. Consequently, it is discernible that information sources having the quality of timeliness can satisfactorily cater to the information needs of the information source users. In this study, it has been found that the farmers are quite satisfied with the timeliness of the information sources they accessed. That is why the variable timeliness of the information source shows significant and positive association with the dependent variable, information source users' satisfaction.

From Table 3, it is observable that the variables family education status ( $X_3$ ) and usefulness of the information source ( $X_{18}$ ) are significantly and negatively contributing towards characterising the dependent variable, the information source users' satisfaction whereas other three variables namely risk preference ( $X_{13}$ ), decision-making ability ( $X_{15}$ ) and timeliness of the information source ( $X_{19}$ ) are significantly and positively contributing towards characterising the dependent variable, the information source users' satisfaction.

**Table 3: Multiple Regression Analysis of the Information Source Users' Satisfaction ( $Y_1$ ) with 19 Predictor Variables**

Variables	Standardised regression coefficient ( $\beta$ )	Unstandardised regression coefficient ( $\beta$ )	S.E of ' $\beta$ '	t-value
Age ( $X_1$ )	-0.185	-0.078	0.064	-1.212
Education ( $X_2$ )	0.153	0.681	0.646	1.055
Family Education Status ( $X_3$ )	-0.184	-1.016	0.565	-1.800*
Major occupation ( $X_4$ )	0.032	0.235	0.743	0.316
House Type ( $X_5$ )	0.123	1.142	0.966	1.183
Social Participation ( $X_6$ )	-0.077	-0.905	1.122	-0.807
Material possession ( $X_7$ )	0.051	0.032	0.064	0.496
Land Holding ( $X_8$ )	-0.033	-0.134	0.429	-0.313
Farm power ( $X_9$ )	0.033	0.108	0.320	0.338
Livestock possession ( $X_{10}$ )	0.045	0.103	0.245	0.419
Extension contact ( $X_{11}$ )	-0.072	-0.138	0.207	-0.665
Mass media exposure ( $X_{12}$ )	-0.182	-0.619	0.382	-1.622
Risk Preference ( $X_{13}$ )	0.203	0.371	0.195	1.902*
Economic Motivation ( $X_{14}$ )	-0.089	-159	0.190	-0.835
Decision-making ability ( $X_{15}$ )	0.285	0.577	0.216	2.671**
Attitude towards use of information sources ( $X_{16}$ )	0.080	0.167	0.219	0.763
Utilisation pattern of information sources ( $X_{17}$ )	-0.099	-0.078	0.088	-0.895
Usefulness of the information source ( $X_{18}$ )	-0.276	-0.162	0.081	-2.00*
Timeliness of the information source ( $X_{19}$ )	0.354	0.233	0.094	2.480**

\*\*Significant 1% level; \*Significant at 5% level;  $R^2 = 0.341$

### Family Education Status and the Information Source Users' Satisfaction

Family education status reflects formal educational level of the family members which helps them think independently and develop skill to analyse situation critically. In this context, the farmers' family with high level of education status have shown lesser interest to consult with various information sources than the families with lower level of family education status because higher exposure to number of complex situations enables them to solve many problems with their own strategy. Another important reason is that possessing higher educational qualification has made them more critical about the quality of the information provided by information sources.

Hence, they are not as easily satisfied as those with relatively low level of education. That is why the variable family education status is significantly and negatively contributing towards characterising the predicted variable, information source users' satisfaction. The variable family education status is directly contributing 18.40% in case of characterising the dependent variable, information source users' satisfaction. One unit change of the variable family education status is delineating the 1.016 unit change in the predicted variable.

### **Usefulness of the Information Source and the Information Source Users' Satisfaction**

Usefulness of information source was measured with the help of usability of the content and effectiveness of information sources. In other words, information source users' satisfaction was measured with the help of content provided by the source, the timeliness, the effect and the precision level of the information provided by the source. The extreme use of information sources, nowadays, provides the information which is contradictory to each other leading to a confusing state of mind of the user. The users are getting diversified information, but due to ambiguous nature of the information and wrong timeliness of the information, the provided information will not provide satisfaction to the users. As the satisfaction comes from the enriched, timely, precise and effective content of the information that is why the variable usefulness of the information source is contributing significantly and negatively in case of characterising the predicted variable, information source users' satisfaction. The variable usefulness of information source is directly contributing 27.60% in case of characterising the dependent variable, information source users' satisfaction. One unit change of the variable usefulness of information source is delineating the 0.162 unit change in the predicted variable.

### **Risk Preference and the Information Source Users' Satisfaction**

Risk preference facilitates the process of critical analysis of a situation by people and thereby identifying the potential risk and uncertainty associated with the situation. Similarly, farming practices today face several threats arising due to several factors which ultimately increase the risk of production as well as marketing. In this situation, farmers are required to obtain up-to-date information about various aspects of farming so that they can avert the risk and cope with the changing situation. In fact, timely and accurate information would help the farmers predict any unfavourable situation and thereby plan appropriate strategies to overcome the

challenges and continue their cultivation in a sustainable way. In this study, it has also been found that those farmers who have more positive attitude towards risk taking are more aware about various information sources available in their area and they also consult those information sources time to time for getting latest information about advances in farming practices as well as the risks associated with them. Hence, the variable risk preference is significantly and positively contributing in case of characterising the dependent variable, information source users' satisfaction. The variable risk preference is directly contributing 20.30% in case of characterising the dependent variable, information source users' satisfaction. One unit change of the variable risk preference is delineating the 0.371 unit change in the predicted variable.

#### **Decision-Making Ability and Information Source Users' Satisfaction**

Decision-making ability is such a component of human psyche which requires a sound knowledge about what is going on around oneself and thereby develop a proper insight about various issues to decide upon the best option from many alternatives. Farming is also experiencing several changes day by day in various aspects which require appropriate decision-making ability on the part of the farmers for choosing the appropriate strategies to cope with those changes. And, in this direction, information sources would play an important role in case of providing timely and accurate information to the farmers for taking appropriate decision in any aspect of farming. This study has also revealed that farmers with sound decision-making ability have access to different information sources for getting up-to-date information about latest developments in agriculture and allied sector for making their farming practices sustainable. That is why the variable decision-making ability is significantly and positively contributing in case of characterising the predicted variable, information source users' satisfaction. The variable decision-making ability is directly contributing 28.50% in case of characterising the dependent variable, information source users' satisfaction. One unit change of the variable decision-making ability is delineating the 0.577 unit change in the predicted variable.

#### **Timeliness of Information Source and Information Source Users' Satisfaction**

Timeliness of the information source in providing required information to the information seekers determines the quality and effectiveness of the information source to a great extent.

Therefore, timeliness of the information source has a direct influence on the satisfaction level of the information users. In fact, any information would be of no use to the users unless it is provided to them timely. Same situation prevails in agriculture. Several changes are occurring every day in many aspects of farming which requires the farmers to be up-to-date with latest information for coping with those changes. Therefore, farmers need to seek timely information from various sources so that their information needs can be satisfied at the time of necessity. This study also reveals that farmers are more satisfied with the information sources which are able to provide the needed information to them at the very moment they are required. That is why the variable timeliness of information source is significantly and positively contributing in case of characterising the dependent variable, information source users' satisfaction. The variable timeliness of information source is directly contributing 35.40% in case of characterising the dependent variable, information source users' satisfaction. One unit change of the variable timeliness of information source is delineating the 0.233 unit change in the predicted variable.

The  $R^2$  value being 0.341, it is to infer that the 19 predictor variables put together have explained 34.10% variation embedded with the predicted variable, information source users' satisfaction. Still 65.90% variable embedded within predicted one remains unexplained. Thus, it would be suggested that inclusion of some more contextual variables possessing direct bearing on the information source users' satisfaction could have increased the level of explicability.

## CONCLUSION

In the era of information vibrant agricultural development, the need of the hour is to refocus the appropriateness of agricultural information sources for a grater stakeholders' satisfaction. The satisfaction emphasises the reinforcement of new agricultural information application in the users' situation. The young and energetic youth can take initiative to utilise the available agricultural sources in an appropriate manner, the enhanced family education status creates a heavy demand of information which is hardly possible through locally available information sources to satisfy their needs. For carrying out various activities by the farmers of rural area information sources and support is also vital. As it is seen that majority of the farmers have the requirement of good information sources for access the agricultural information except some of the old aged farmers. Therefore, application of ICT-based agricultural information support system is much effective in dissemination

of technical *knowhow* in rural areas for illiterate and old aged farmers. Furthermore, agricultural extension materials should also be designed to facilitate field extension workers and or farmer group leaders in farming group meeting. Considering that farmers group meeting is the most frequent communication medium used by the farmers, the field extension workers needs more training in modern agricultural extension approaches.

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