

Agricultural Information Literacy of Farmers in the Northern Region of Bangladesh

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Abstract
The study aims at exploring the extent of agricultural information literacy of farmers in the northern region of Bangladesh. Besides the review of relevant literature the study conducts a questionnaire-based survey of 160 farmers working in ten districts in the region. The analysis of the survey shows that farmers need information for various purposes of agricultural activities, and they use different sources and media for access to such information. Many of the farmers, however, are not well aware of modern techniques of agriculture, and they occasionally use such techniques for farming. Due to some problems farmers are moderately satisfied in getting agricultural information, and in many cases their satisfaction level is very low. The paper concludes with providing certain recommendations for the improvement of information literacy of the farmers in Bangladesh.
Keywords: Information literacy, agricultural information, farmers, northern region, Bangladesh.

1. Introduction

In an era of knowledge economy, information plays an increasingly important role in every sphere of the development process. As a new paradigm for lifelong learning, information literacy (IL) has become a subject of interest and discussion in a range of scientific and professional literature. Since the 1980s, with the wide and rapid application of the computer-centered information technology, the importance of information literacy has received a broader recognition. The concept of information literacy was first put forward by Mr. Paul Zurkowski, president of Information Industry Association of the United States in 1974 who described information literacy as "the competence to use information, study information technology, and mold information solutions to problems" (Loertsue, 1999). IL is the ability to identify information needs, seek out resources to meet those needs, and then analyze, evaluate, synthesize, and communicate the resulting knowledge. It encompasses much more than access to and the ability to use computers, the Internet and associated paraphernalia. It includes an ability and willingness to understand the value of information, to recognize entrepreneurial opportunities in the sector, to locate, evaluate, and select appropriate information sources, and to translate information into knowledge to be used productively, even strategically. It is usually said that an information literate society is a necessary precondition if the promised returns on an investment in information and communications technology are to be realized (John, 2005). The implications of IL for economic and social development have been recognized by policy makers at both international and national levels, as Garner (2006) mentions that IL needs to be considered not only in relation to education, but also in the broader context of work, civil society, and health and well being.
Bangladesh, located in South Asia, bordering the Bay of Bengal, between India and Myanmar, is one of the overpopulated, underdeveloped and technologically backward countries in the world (Roknuzzaman, 2006). Almost 80 percent of Bangladesh's population lives in the rural areas, and majority of them are employed in agriculture. Thus, Bangladesh has a primarily agrarian economy which is the single largest producing sector of the economy since it comprises about 18.6% of the country's GDP and employs around 45% of the total labor force. The performance of this sector has an overwhelming impact on major macroeconomic objectives like employment generation, poverty alleviation, human resources development and food security (Wikipedia, 2012). Although the mainstream economy of Bangladesh is based on agriculture, most of the farmers working in this sector are not well educated, even they are not aware of the tools and techniques of modern agricultural system. This study aims at exploring the extent of the agricultural information literacy of farmers in Bangladesh with particular emphasis on the northern region of the country.

2. Review of Literature

2.1 Concept of Information Literacy (IL)

An extensive amount of literature has been published on information literacy during the last three decades and

the concept is defined differently by different authors. One of the most frequently used definitions of IL was given by American Library Association (1995) as "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. The information literate people are those who have learned how to learn".

Information literacy is directly related to critical thinking skills and emphasizes such activities as selection, rejection, evaluation, organization, topic definition and question definition (Connell & Franklin, 1994). As described in the Organization for Economic Cooperation and Development (OECD)'s Global Project on Measuring the Progress of Societies, information literacy enables people to move from dependence on 'knowledge brokers' to become 'knowledge builders' (OECD, 2007). Information is now available in numerous sources and formats, such as printed text, television, videos, library databases, web sites, etc. Information literate person is one who can locate, select, analyze, evaluate, and use information for problem solving. An information literate individual is able to:

- determine the extent of information needed
- access the needed information effectively and efficiently
- evaluate information and its sources critically
- incorporate selected information into one's knowledge base
- use information effectively to accomplish a specific purpose, and
- understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally (Association of College and Research Libraries, 2000).

According to Breivik and Gee (1989) the definition of information literacy is an evolving one, and in the midst of the information explosion, the ability to access, retrieve, and evaluate information should constitute a significant part of today's definition of literacy. Barefoot (2006) opines that to solve information-related problems, one needs to be information literate and to be information literate, one needs to learn a new set of skills, which include how to locate and use the information needed for problem solving and decision-making efficiently and effectively. The Prague Declaration (2003) defines information literacy, positioning it within lifelong learning, and mentions that information literacy, which encompasses knowledge of one's information needs and the ability to identify, locate, evaluate, organize and effectively use information to address issues or problems at hand, is a prerequisite for participating effectively in the information society, and is part of the basic human right of lifelong learning.

2.2 Models of Information Literacy

The Seven Pillars model was developed through the work of the Society of College, National, and University Libraries (SCONUL) in the UK in the late 1990s (SCONUL Advisory Committee on Information Literacy, 1999). The seven pillars model indicates seven headline skills: (i) the ability to recognize a need for information; (ii) the ability to distinguish ways in which the information 'gap' may be addressed; (iii) the ability to construct strategies for locating information; (iv) the ability to locate and access information; (v) the ability to compare and evaluate information obtained from different sources; (vi) the ability to organize, apply and communicate information to others in ways appropriate to the situation; (vii) the ability to synthesize and build upon existing information, contributing to the creation of new knowledge.

The Big6 model developed by Eisenberg and Berkowitz (1990) follows extensively on information problem solving approach. This model involves learning around the six steps: task definition; information seeking strategies; location and access; use of information; synthesis; and evaluation. A wider view of information literacy has been illustrated by Hughes and Shapiro (1996) who define literacy-centric curriculum which includes technological, social, research, and ethical elements. Hughes and Shapiro's model also introduces the concept of multiple-literacies.

The Six Frames model from Bruce, Edwards, and Lupton (2006) focuses on six distinct views of information literacy. It includes metacognitive roles (learning to learn) which emphasize the importance of management tasks which focus on regulation of the information experience. In this sense, the Six Frames model is a context focused meta-model for information literacy which views the impact of information literacy in different contexts as opposed to defining what information literacy should look like specifically. The model developed by Sundin (2008) focused on identifying meta-models based on a review of 31web-based information literacy tutorials. Sundin's model is in some regards less critical and more descriptive of information literacy approaches in that it primarily seeks to document each approach.

2.3 Empirical Studies

Empirical studies in information literacy have been conducted in different context like education, health, industry and agriculture etc. in order to get knowledge of the problems and issues crucial in planning and enhancing instructional programmes in information literacy. McGowen (1995) studied practicing physicians' attitudes towards life-long learning, defined in the study as ability to identify a need, access and retrieve information, evaluate and use it appropriately. The study showed that in order to enhance the retention of the

knowledge and skills in information literacy and life-long learning, the skills should be taught throughout the entire medical education, not only during the first two years. A number studies, such as studies by Schilling *et al*. (1995), and Minchow (1995) emphasize the importance of integration of information literacy skills and activities into existing courses. Students' attitudes towards integrated courses were positive and their skills improved significantly during the courses.

Webber and Johnston (2000) studied students' conceptions of information literacy and compared them with Bruce's seven faces of information literacy. They found that students identified information seeking and sources in their conception of information literacy and the role of information technology was emphasized. Based on interviews with 15 education students in an Australian university, Diehm and Lupton (2012) explore that students use three main strategies for learning information literacy: learning by doing; learning by trial and error; and learning by interacting with other people. Understanding the different ways that students approach learning information literacy will assist librarians and faculty to design and provide more effective information literacy education. Meitei and Devi (2009) have explored different types of information needs of farmers in rural Manipur in India, and identified a number of channels of getting such information. The study findings reveal that information support is vital for carrying out various activities by farmers, but they do not get access to required agricultural information due to lack of technology literacy skills and support infrastructure. In a study of agricultural information literacy of farmers in India, Malhan and Singh (2010) explored a huge knowledge gap between what is demonstrated at experimental farms and what is actually practiced by farmers in their fields. Widespread illiteracy is the major factor for lack of agricultural information literacy which subsequently hampers the Indian farmers' capacity to access and use agricultural information.

3. Objectives of the Study

The main objective of this study is to explore the information literacy of farmers in the northern region of Bangladesh. The specific objectives are:

- to identify different types of information needs of farmers
- to know the probable sources of getting such information
- to trace the media and tools used by the farmers to access to information
- to assess the information literacy skills of the farmers
- to explore the level of satisfaction of the farmers in terms of meeting their information needs
- to find out major problems encountered by the farmers when accessing and using information
- to suggest some effective measures to improve the overall situation of information literacy of farmers in Bangladesh.

4. Research Methodology

The present study is exploratory in nature, and it adopted a questionnaire-based survey of selected farmers, along with a comprehensive review of relevant literature. A total of 160 farmers engaged in agricultural activities in the northern region of Bangladesh were selected purposively from ten districts in the region, namely Rangpur, Kurigram, Gaibandha, Bogra, Sirajgonj, Pabna, Natore, Rajshahi, Nogaon, and Chapai Nawabgonj. The respondents were selected considering their rich experience in agriculture, and a minimum ability to read and write Bangla language. Since most of the farmers were not well-educated, data were collected through personal contact and face-face meeting with each individual by using a structured questionnaire. Findings of the study were statistically analysed.

5. Study Results and Discussion

5.1 Profile of the Respondents

As shown in Table 1, the respondents are categorized according to their age group, sex and experiences in agriculture.

Table 1: Profile of the Study Respondents

Attributes		No. of Farmers (N=160)	Percentage
Age	Less than 25 years	20	12.5
	25-29 years	36	22.5
	30-34 years	40	25.0
	35-39 years	30	18.75
	40-44 years	20	12.5
	More than 45 years	14	8.75
	N=	**160**	**100%**
Sex	Male	154	96.25
	Female	06	3.75
	N=	**160**	**100%**
Experience in agriculture	Less than 5 years	16	10.0
	5-9 years	36	22.5
	10-14 years	50	31.25
	15-19 years	44	27.5
	More than 20 years	14	8.75
	N=	**160**	**100%**

The highest number of respondents (40) is in age group 30-40. The second highest number of respondents (36) comes from age group 25-29, followed by 30 from age group 35-39, and 20 each from age group less than 25 years and from 40-44. The rest 14 respondents are from the age group of more than 45 years. Most of the respondents (96.25%) are male while only 6 (3.75%) respondents are female. As regard to the experiences in agricultural activities, 50 (31.25%) respondents reported to have 10-14 years of experience, while 44 (27.5%) have 15-19 years of experience. Thirty six (22.5%) respondents are identified as having 5-9 years of experience, 16 (10%) as less than 5 years, and 14 (8.75%) as more than 20 years of experience in agricultural activities.

5.2 Basic Information Needs of Farmers

Farmers need various types of information. The basic information need as shown in Table 2 (multiple responses) indicates that all of the farmers (100%) need agricultural information while 24% need health care related information, 16% require educational information, and only 8% farmers indicate their need for recreational information.

Table 2: Basic Information Needs of Farmers

Types of Information	No. of the Respondents	Percentage
Agriculture	160	100
Education	50	31
Health care	75	47
Recreation	25	16

5.3 Agricultural Information Needs

Respondents were asked to indicate, on a scale of 1 (never) to 5 (very often), the extent of their information needs on agriculture. The results in Table 3 show that majority percent of the respondent (75%) affirmed that they require information on seeds very often, followed by diseases and pest (70%). Respondents often require information on agriculture include soil and water conservation (67.5%), post harvest techniques (65.6%), irrigation (62.5%), and manure and fertilizer management (59.4%). On the other hand, a good number of respondents agreed that they seek information occasionally on modern cultivation system (61.3%), announcements related to the farmers training programmes (56.3%), weeding and thinning (55.0%), government schemes on agriculture (54.4%), storage of crops (51.3%), and weather information (50.0%).

5.4 Significance of the Purposes of Gathering Information

Table 4 reveals that the most significant purpose of gathering information is advancement of primary production of agriculture (75%). This was followed by producing quality product and product planning (68.8%), achieving sustainable agriculture (62.5%), marketing agricultural product (61.3%) and controlling pest (57.5%) as rated significant purpose by the respondent. Whereas, developing community education

(59.4%) and achieving self improvement (59.4%) were considered as moderately significant.

5.5 Using Sources and Media for Access to Information

Table 5 shows the use of media and tools for getting agricultural information. It reveals that professional colleagues or other farmers (78.1%), school teacher (75.0%) and community leader/village head (68.8%) were the most often used sources and media by the respondents to obtain information on agriculture. The farmers often rely on newspaper (62.5%), radio (59.4%), poster (56.2%), television (53.1%), leaflet and brochure (53.1%) and books (48.8%) as a means of getting information. Moreover, the farmers depend sometimes on mobile (51.3%) and government officials (56.3%) in order to get information.

Table 3: Various Agricultural Information Needs of Farmers

Category of agricultural information needs	1	2	3	4	5
Modern cultivation system	30 (18.8)	15 (9.4)	98 (61.3)	12 (7.5)	5 (3.1)
Seeds and planting materials	5 (3.1)	10 (6.3)	10 (6.3)	15 (9.4)	120 (75.0)
Diseases and pest management	15 (9.4)	5 (3.1)	10 (6.3)	18 (11.3)	112 (70.0)
Manure and fertilizer management	8 (5.0)	22 (13.8)	20 (12.3)	95 (59.4)	15 (9.4)
Weather information	-	10 (6.3)	80 (50.0)	40 (25.0)	30 (18.8)
Soil and water conservation	10 (6.3)	12 (7.5)	25 (15.6)	108 (67.5)	10 (6.3)
Irrigation	-	12 (7.5)	30 (18.8)	100 (62.5)	18 (11.3)
Government schemes on agriculture	20 (12.3)	33 (20.6)	87 (54.4)	18 (11.3)	2 (1.3)
Post harvest techniques	10 (6.3)	10 (6.3)	15 (9.4)	105 (65.6)	20 (12.3)
Market information	12 (7.5)	10 (6.3)	28 (17.5)	102 (63.8)	8 (5.0)
Weeding and thinning	25 (15.6)	22 (13.8)	88 (55.0)	15 (9.4)	20 (12.3)
Storage of crops	5 (3.1)	15 (9.4)	82 (51.3)	40 (25.0)	18 (11.3)

N.B. Numbers in parentheses indicate percentages
Scale: 1= Never, 2= Rarely, 3= Occasionally, 4=Often, 5= Very often

Table 4: Purpose of Gathering Information

Purposes	**1**	**2**	**3**	**4**	**5**
For advancement of primary production of agriculture	05 (3.1)	08 (5.0)	12 (7.5)	15 (9.4)	120 (75.0)
To produce quality product and product planning	10 (6.3)	18 (11.3)	22 (13.8)	110 (68.8)	10 (6.3)
To develop community education	10 (6.3)	25 (15.6)	95 (59.4)	20 (12.3)	10 (6.3)
To achieve sustainable agriculture	8 (5.0)	20 (12.3)	22 (13.8)	100 (62.5)	10 (6.3)
To achieve self-improvement	10 (6.3)	30 (18.8)	95 (59.4)	15 (9.4)	10 (6.3)
For marketing agricultural product	15 (9.4)	5 (3.1)	32 (20.0)	98 (61.3)	20 (12.3)
To control pest	10 (6.3)	18 (11.3)	30 (18.8)	92 (57.5)	20 (12.3)

N.B. Numbers in parentheses indicate percentages
Scale: 1= Not significant, 2= Significant to some extent, 3= Moderately significant, 4=Significant, 5= Highly

significant

Table 5: Using Sources and Media for Access to Information

Media and tools	**1**	**2**	**3**	**4**	**5**
Suppliers	20 (12.3)	12 (7.5)	30 (18.8)	88 (55.0)	10 (6.3)
Government officials	40 (25.0)	15 (9.4)	90 (56.3)	5 (3.1)	10 (6.3)
Extension personnel- Bank and NGO	10 (6.3)	20 (12.3)	15 (9.4)	110 (68.8)	5 (3.1)
Professional Colleagues /other farmers	--	10 (6.3)	10 (6.3)	15 (9.4)	125 (78.1)
School teacher	--	10 (6.3)	20 (12.3)	10 (6.3)	120 (75.0)
Community leader	5 (3.1)	15 (9.4)	10 (6.3)	20 (12.3)	110 (68.8)
Books	15 (9.4)	25 (15.6)	32 (20.0)	78 (48.8)	10 (6.3)
Encyclopaedias	60 (37.5)	50 (31.3)	30 (18.8)	10 (6.3)	10 (6.3)
Newspaper	5 (3.1)	10 (6.3)	15 (9.4)	100 (62.5)	20 (12.3)
Leaflet /Brochure/ Poster	20 (12.3)	15 (9.4)	20 (12.3)	85 (53.1)	30 (18.8)
Television	10 (6.3)	20 (12.3)	5 (3.1)	85 (53.1)	40 (25.0)
Radio	10 (6.3)	10 (6.3)	30 (18.8)	95 (59.4)	15 (9.4)
Internet/Email	35 (21.9)	50 (31.3)	60 (37.5)	10 (6.3)	5 (3.1)
Mobile phone	10 (6.3)	38 (23.8)	82 (51.3)	20 (12.3)	10 (6.3)

N.B. Numbers in parentheses indicate percentages
Scale: 1= Never, 2= Rarely, 3= Sometimes, 4=Often, 5= Very often

5.6 Places of Access to Information

Table 6 reveals that a majority of the farmers use community information centre (73.8%) very often, and NGO information centre (68.8%) often for access to information. Government information centre (63.8%) and home (53.1%) are used sometimes by the farmers as their places of information access. Findings suggest that library is a place which is rarely used by (56.3%) respondents.

6.7 Farmers' Participation in Different Literacy Programmes

The farmers' participation in different literacy programs are shown in Table 7. The findings indicate that 71.8% farmers enjoy TV and radio talk show to become agricultural information literate persons. Other programs such as adult education (18.8%), workshop (25%) and book promotion (12.5%) were followed as a means of creating literacy by a small number of the farmers. It is also evident that 59.4% and 42.5% of the respondent participate in exhibition and professional lectures respectively.

6.8 Information Literacy Skills of Farmers

The farmers were asked about their information literacy skills which are presented in Table 8. The results clearly indicate that a large percentage of the respondent farmers (66.6%) had the sufficient skill on evaluating and using information while 59.4% and 55% had the moderate level of skill on extracting and managing information, and on using mobile phone. Moreover, the farmers were aware of some extent to use computer, multimedia and audio-visual equipment as 52.1% respondent agreed.

Table 6: Places of Access to Information

Sources	**1**	**2**	**3**	**4**	**5**
Home	05 (3.1)	15 (9.4)	85 (53.1)	50 (31.3)	05 (3.1)
Govt. Agricultural information centre	10 (6.3)	28 (17.5)	102 (63.8)	10 (6.3)	10 (6.3)
NGO information centre	5 (3.1)	15 (9.4)	20 (12.3)	110 (68.8)	10 (6.3)
Community Information Centre	15 (9.4)	12 (7.5)	5 (3.1)	10 (6.3)	118 (73.8)
Library	40 (25.0)	90 (56.3)	20 (12.3)	10 (6.3)	--

N.B. Numbers in parentheses indicate percentages
Scale: 1= Never, 2= Rarely, 3= Sometimes, 4= Often, 5= Very often

Table 7: Participate in Different Literacy Programs

Literacy program	**Respondents***	**Percentage**
Professional lectures	68	42.5
Workshop	40	25.0
Adult education	30	18.8
Exhibition	95	59.4
Book promotion	20	12.5
TV and Radio talk show	115	71.8

**Respondents provide multiple answers*

Table 8: Information Literacy Skills of Farmers

Skills	**1**	**2**	**3**	**4**	**5**
Using mobile to communicate	12 (7.5)	42 (26.3)	88 (55.0)	15 (9.4)	3 (1.9)
Using internet	95 (59.4)	35 (21.9)	20 (12.3)	10 (6.3)	--
Evaluating and using information properly	15 (9.4)	10 (6.3)	25 (15.6)	105 (66.6)	5 (3.1)
Retrieving information from online	100 (62.5)	30 (18.8)	25 (15.6)	5 (3.1)	--
Extracting, recording, and managing information	25 (15.6)	35 (21.9)	95 (59.4)	18 (11.3)	2 (1.3)
Using computer, multimedia & AV equipment	30 (18.8)	85 (52.1)	20 (12.3)	10 (6.3)	15 (9.4)

N.B. Numbers in parentheses indicate percentages
Scale: 1= Insufficient , 2= To some extent, 3= Moderate, 4= Sufficient, 5=Highly sufficient

6.9 Use of Modern Technique in Agriculture

Table 9 reveals that the significant percentage of farmers (78.9%) agree that they usually (very often) use improved seeds for cultivation. The findings also indicate that motorized pump (66.6%) is often used for irrigation by the farmers. Moreover, a good number of the respondents admitted that they occasionally rely on spraying machines and portable trailer (56.3%), modern agricultural equipment (51.3%), effective pesticides (55%), mechanized land preparation (56.3%), gloves when dealing with DDT (51.3%), better crop rotation practices and fertilizer application (55.0%) and new methods of crop preservation (52.1%). Only a few of the farmers (3.1%) are capable of using innovative technology in agriculture.

Table 9: Use of Modern Techniques in Agriculture

Modern Techniques	**1**	**2**	**3**	**4**	**5**
Modern agricultural equipment	30 (18.8)	20 (12.3)	82 (51.3%)	18 (11.3)	10 (6.3)
Introducing improved seeds	10 (6.3)	8 (5.0)	12 (7.5)	10 (6.3)	115 (78.9)
Use effective pesticides	40 (25.0)	10 (6.3)	88 (55.0)	12 (7.5)	10 (6.3)
Use of spraying machines and portable trailer	30 (18.8)	20 (12.3)	90 (56.3)	15 (9.4)	5 (3.1)
Use of gloves when dealing with DDT	30 (18.8)	20 (12.3)	82 (51.3)	18 (11.3)	10 (6.3)
Use motorized pump for irrigation	10 (6.3)	18 (11.3)	12 (7.5)	105 (66.6)	15 (9.4)
Mechanized land preparation	30 (18.8)	12 (7.5)	90 (56.3)	18 (11.3)	10 (6.3)
Use of Innovative technology	70 (43.8)	50 (31.3)	35 (21.9)	5 (3.1)	--
Better crop rotation practices and fertilizer application	20 (12.3)	25 (15.6)	88 (55.0)	15 (9.4)	12 (7.5)
New methods of crop preservation	18 (11.3)	30 (18.8)	85 (52.1)	15 (9.4)	12 (7.5)

N.B. Numbers in parentheses indicate percentages
Scale: 1= Never, 2= Rarely, 3=Occasionally, 4= Often, 5= Very often

6.10 Level of Satisfaction

The satisfaction level of farmers as observed in Table 10 reveals that more than thirty percent (31.3%) farmers are moderately satisfied in terms of getting agricultural information, while only 15.6% are satisfied, 28.1% are satisfied to some extent, and 18.8% are not satisfied at all. The evidence shows that only 6.2% farmers are highly satisfied.

Table 10: Satisfaction level of farmers in terms of getting information

Level of satisfaction	**N=60**	**Percentage**
Not satisfied	30	18.8
Satisfied to some extent	45	28.1
Moderately satisfied	50	31.3
Satisfied	25	15.6
Highly satisfied	10	06.2
Total	160	100%

Scale: 1= Not satisfied, 2= Satisfied to some extent, 3= Neutral, 4= Satisfied, 5= Highly satisfied

6.11 Major Problems Encountered by Farmers

Table 11 shows the farmers indicate the inability to use media and tools of information (68.8%) and low level of income (66.6%), and high rate of illiteracy (59.4%) are the most significant problems encountered by them. Inadequate transport facility (58.8%), inadequate contact to extension agent (61.3%) lack of rural electrification (57.5%)), inaccessibility to the rural areas by the NGOs (60%), and ignorance of government responsibility (62.5%) are identified as significant problems.

Table 11: Major Problems Faced by the Farmers

Problems	**1**	**2**	**3**	**4**	**5**
Inability to access formal channel of information	10 (6.3)	20 (12.3)	8 (5.0)	12 (7.5)	110 (68.8)
Low level of income	5 (3.1)	8 (5.0)	32 (20.0)	10 (6.3)	105 (66.6)
Lack of personal interest and special knowledge	2 (1.3)	25 (15.6)	75 (46.9)	40 (25.0)	8 (5.0)
Inadequate transport facility	--	10 (6.4)	20 (12.3)	94 (58.8)	36 (22.5)
Inadequate contact to extension agent	--	5 (3.1)	25 (15.6)	98 (61.3)	32 (20.0)
High rate of illiteracy	0	0	15 (9.4)	50 (31.3)	95 (59.4)
Lack of rural electrification	12 (7.5)	10 (6.3)	28 (17.5)	92 (57.5)	18 (11.5)
Agricultural information on radio and TV is always aired at odd hours	3 (1.9)	25 (15.6)	57 (35.6)	40 (25.0)	35 (21.9)
Inaccessibility to rural areas by the NGOs	5 (3.1)	10 (6.3)	34 (21.3)	96 (60.0)	15 (9.4)
Ignorance of government responsibility	10 (6.3)	15 (9.4)	10 (6.3)	100 (62.5)	25 (15.6)

Scale: 1= Not significant, 2= Less significant, 3= Neutral, 4= Significant, 5= Highly significant

7. Conclusion and recommendations

In fact, information is a vital resource for all socio-economic activities, and there is no such field of human endeavor wherein information is not a component. The findings of the present study hint a patent fact that the farmers in northern region of Bangladesh need various types of information for farming, and they use a number sources and media for access to their required information. Although they get help from community information centers, NGO information centers, and from other government information centres, their skills in using modern techniques in agriculture are not at a satisfactory level. Besides, high rate of illiteracy, lack of financial support, inadequate transport facility, lack of rural electrification, and ignorance of government responsibility, etc. have caused them problems in accessing agricultural information properly. There is a need for extension agents to lay more emphasis on sustainable practices and also to disseminate information to them and address their needs properly. Based on the prevailing situation, the study provides the following recommendation for improvement of overall information literacy of farmers in Bangladesh:

- Educational programs should be designed for farmers so that they could use media and tools of agricultural information easily and become information literate.
- The farmers need to be adequately trained by the agricultural extension agent on regular basis .For this, extension agent who is professionally trained for information dissemination to farmers should be sent to the village frequently. They must take note of the information needs of the farmers and endeavor to step up their services in these areas of need.
- Adult literacy program is required to help the farmers acquiring basic skills and abilities to seek and receive needed agricultural information through modern communication channels.
- Government should take proper initiatives to encourage and assist farmers. Moreover, government should consider granting incentives and assistance to the agricultural sub-sector and to the farmers in form of credit as these would enable them take action to use sustainable agricultural practices
- Development of rural electrification is required in order to render modern agricultural information service/facilities to door to door of the farmer.
- Initiative should be taken to establish well road communication in the rural areas to enable regular visits by NGOs.
- Joint training and information literacy awareness programs between the government organization and foreign research institutes should be promoted to strengthen farmers' capability in the production system.

- Awareness creation, through newspapers and television, of the various sources of information for farmers would also be helpful. In addition, the use of a public notice board in a public space, such as the village tea shop, would be a useful place to begin.
- There is a need to broadcast agricultural information on radio and television frequently, in local dialect, to enable the illiterate farmers understand and apply the innovations. Also, radio and television broadcast on agricultural information should be aired when majority of the farmers would have returned to home.
- Community outreach programmes should equally be organized and used to disseminate information that would aid the socio-economic, political and general enlightenment of the rural farmers.
- The public library or community information centers should get closer to the farmers and enlighten them on the information and services they provide. The library should provide not only printed materials but also a lot of non-print and audio-visual materials since the farmers obtain and understand information better through oral, visual and auditory means of communication.

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