FACTORS INFLUENCING INFORMATION NEED OF PARTICIPANT FARMERS OF NICRA PROJECT WITH REFERENCE TO CLIMATE CHANGE ADAPTATION

[1]DIPANKAR KALITA, [2]P. K. DAS, [3]M. Deka, [4]H. Mazumdar, [5]A. Ali, [6]A. Rajbongshi, [7]S. Barman, [8]T. Malakar, [9]P. Bharali, P.K. Das[10]

[1] Project Associate, [2] Professor, [3]Head, KVK, [4.5.6]SMS, KVK, [7]Assistant Professor, [8]SRF, [9]Assistant Project Scientist, [10]Farm Manager, KVK

[1]Department of Extension Education, Biswanath College of Agriculture, *Assam Agricultural University, BiswanathChariali, Assam, India*

Abstract: The present study was conducted in Nalbari district of Assam state, India to assess the degree of information need of participant farmers of the National Innovations on Climate Resilient Agriculture (NICRA) projectwith reference to climate change adaptation and to identify the factors influencing their degree of information need. Four villages covered under the NICRA project were selected purposively for the study. From each of the four selected villages, 30 respondents, who were participant farmers of the NICRA project, were selected randomly. Thus, 120 participant farmers constituted the sample of respondents for the study. Data were collected by personal interview method with the help of a structured schedule. Findings indicated that majority of the respondents (75.00%) had medium degree of information need with reference to climate change adaptation followed by 16.67% of respondents with high degree of information need and 8.33% of respondents with low degree of information need with reference to climate change adaptation. In order to identify the factors influencing the farmers' degree of information need, the correlation of 16 selected independent variables with degree of information need was found out with the help of Pearson Product- Moment Correlation Co-efficient.The significance of an observed correlation co-efficient was ascertained with the help of "t" test. The decision criterion was stipulated at 0.01 and 0.05 level of probability. Out of 16 selected independent variables, 7 variables, viz., Educational level, Family type, Farm size, Social participation, Management orientation, Innovation proneness and Economic motivation showed significant positive relationship with the degree of information needs of farmers at 0.01 level. While annual income showed significant positive relationship with the information needs of farmers, farming experience showed significant negative relationship with the information needs of farmers at 0.05 level.

Index Terms: **Information, Information need, NICRA, climate change adaptation**

INTRODUCTION

The word 'information' refers to facts provided or learned about something or someone. According to the Oxford Advanced Learner's Dictionary (2011), information means something one wishes to know and need means necessity for a course of action arising from some facts and circumstances. Information reduces uncertainty and assist in decision making. It may exist as data in books, computers, peoples, files and thousands of other sources. These sources have to be considered simply as raw data until they are used to resolve uncertainties. What we often call information is often a random collection of data which does not become information until it is used by someone to achieve a specific purpose. Information need is the lack of appropriate information on which to base choices that could lead to benefits or services that may improve people's well-being.

Climate change and agriculture are interrelated processes, both of which take place on a global scale. Climate change affects agriculture in a number of ways, including changes in average temperatures, rainfall, and climate extremes (e.g., heat waves), changes in pests and diseases, changes in atmospheric carbon dioxide and ground-level ozone concentrations and changes in sea level (Hoffmann, 2013). The impacts of climate change are global, but countries like India are more vulnerable in view of the high population depending on agriculture. Climate change has become an important area of concern for India to ensure food and nutritional security for growing population.

The Climate change poses a direct and growing threat to the livelihoods of millions of people in India.In agriculture environment, relevant and timely information helps farmers to choose proper agricultural management practices for adaptation to climate variability. Providing information on weather trends and best management practices in farming to cope with climate aberrations helps farmer make correct decisions, such as what crops to grow and where to sell their product and buy inputs.

The Government of India has accorded high priority on research and development to cope with climate change in agriculture sector. The National Mission for Sustainable Agriculture (NMSA), which is one of the eight Missions under the National Action Plan on Climate Change (NAPCC), seeks to address issues regarding 'Sustainable Agriculture' in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies for ensuring food security, equitable access to food resources, enhancing livelihood opportunities and contributing to economic stability at the national level. Considering this background, National Initiative on Climate Resilient Agriculture, later renamed as National Innovations on Climate Resilient Agriculture (NICRA), was launched during February, 2011by Indian Council of Agricultural Research (ICAR) with the funding from Ministry of Agriculture, Government of India. The project consists of four components *viz.,* Strategic Research, Technology Demonstration, Capacity Building and Sponsored/Competitive Grants. The research on adaptation and mitigation covers crops, livestock, fisheries and natural resource management. Assessment of the impact of climate change simultaneous with formulation of adaptive strategies is the prime approach under strategic research across all sectors of agriculture, dairying and fisheries. Evolving climate resilient agricultural technologies that would increase farm production and productivity vis-à-vis continuous management of natural and manmade resources constitute an integral part of sustaining agriculture in the era of climate change. Against this backdrop, this study

was undertaken to assess the degree of information need of participant farmers of NICRA project with reference to climate change adaptation and to identify the factors influencing their degree of information need.

RESEARCH METHODOLOGY

The study was conducted in a cluster of four villages covered under the NICRA project in Nalbari district of Assam state, India. The NICRA project was implemented in the district by the All India Coordinated Research Project on Dryland Agriculture (AICRPDA), Biswanath College of Agriculture Centre, Assam Agricultural University, Biswanath Chariali, Assam since 2013.The project was implemented in a cluster of four villages, namely, Bornarddi, Doukuchi, Churchuri and Mohkholi. All these four villages were selected purposively for the study. From each of the villages, 30 participant farmers were selected randomly. Thus a total 120 participant farmers constituted the sample of respondents for the study. Degree of information need of participant farmers with reference to climate change adaptation was the dependent variable. Keeping in view the objectives of the study a set of 16 independent variables were selected after reviewing the relevant literature available to the investigator and in consultation with the social science experts of Biswanath College of Agriculture.

For assessing the degree of information need of a respondent, first he/ she was asked to indicate the area on which the respondent had need for information relating to climate change adaptation. Then he/she was asked to indicate the degree of information need of each area against 3 response categories *viz.,* most needed, needed and not needed, which were assigned scores of 2, 1 and 0 respectively. The information need score of a respondent was the sum of scores for all the need areas indicated by him/her. Based on the mean and standard deviation of the obtained information need scores, respondents were classified into three categories as low degree of information need, medium degree of information need and high degree of information need. In order to identify the factors influencing the farmers' degree of information need, the correlation of 16 selected independent variables with degree of information need was found out with the help of Pearson Product- Moment Correlation Co-efficient. The significance of an observed correlation co-efficient was ascertained with the help of "t" test. The decision criterion was stipulated at 0.01 and 0.05 level of probability. The collected data were coded, tabulated and analyzed in accordance with the objectives of the study. Statistical tools like frequency, percentage, arithmetic mean, standard deviation, co-efficient of variation, coefficient of correlation and t-test were used for the analysis of data.

RESULT AND DISCUSSION

Data presented in Table1 reveal that among 'mostly needed' areas of information, majority of the respondents (93.33%) expressed that they needed information on diversification of farming system or enterprise, followed by 89.17 per cent of respondents with the need for information on double cropping, 84.17 per cent of respondents with the need for information on integrated pest management, 83.33 per cent of respondents with the need for information on harvesting of crops at proper stage, 82.50 per cent of respondents with the need for information on integrated disease management, 75.83 per cent of respondents with the need for information on integrated nutrient management and 75.00 per cent of respondents with the need for information on organic farming practices. Half of the respondents (50.00%) reported that they mostly needed information on application of NPK fertilizers for drought management, followed by 44.17 per cent of respondents with the need for information on protected cultivation of high value crops

and 39.17 per cent of respondents with the need for information on measures for management of flash or terminal flood in their crop fields.

Among 'needed' areas of information, majority of the respondents (74.17%) expressed that they needed information on crop varieties for different climatic conditions, followed by 72.50 per cent of respondents with the need for information on use of organic manures (vermi-compost/compost), 64.17 per cent of respondents with the need for information on growing of alternate crops for dry spell management, 63.33 per cent of respondents with the need for information on Planning farm operation according to weather based information, 60.83 per cent of respondents with the need for information on measures for management of flash or terminal flood in their crop fields. Half of the respondents (50.00%) reported that they mostly needed information on application of NPK fertilizers for drought management, followed by 25.00 per cent of respondents with the need for information on organic farming practices and 24.17 per cent of respondents with the need for information on integrated nutrient management.

Table 1 Frequency distributions of respondents according to various information need areas

Sl. No.	Information Needed areas	Frequency of farmers (%)		
		Mostlyneeded	Needed	Not needed
1.	Diversification of farming system or enterprise	112 (93.33)	8 (6.67)	-
2.	Double cropping	107 (89.17)	13 (10.83)	-
3.	Integrated Pest Management	101 (84.17)	19 (15.83)	-
4.	Harvesting of crops at proper stage	100 (83.33)	20 (16.67)	-
5.	Integrated Disease Management	99 (82.50)	21 (17.50)	-
6.	Integrated Nutrient Management	91 (75.83)	29 (24.17)	-
7.	Organic farming practices	90 (75.00)	30 (25.00)	-
8.	Application of NPK Fertilizers for drought management	60 (50.00)	60 (50.00)	-
9.	Protected cultivation of high value crops	53 (44.17)	67 (55.83)	-
10.	Measure for management of flash/ terminal flood in crop field	47 (39.17)	73 (60.83)	-
11.	Growing alternate crops for dry spell management	43 (35.83)	77 (64.17)	-
12.	Planning farm operation according to weather based information	39 (32.50)	76 (63.33)	5 (4.17)
13.	Use of organic manures(vermi-compost/compost)	33 (27.50)	87 (72.50)	-

14.	Crop varieties for different climatic conditions	31 (25.83)	89 (74.17)	-
15.	Sowing time /transplanting time manipulation for management of drought condition	21 (17.50)	67 (55.83)	32 (26.67)
16.	Growing of short / medium duration rice cultivars for dry spell management	15 (12.50)	72 (60.00)	33 (27.50)
17.	Animal feed management through growing of fodder crops	12 (10.00)	70(58.33)	38 (31.67)
18.	In-situ rain water harvesting for moisture conservation	12 (10.00)	77 (64.17)	31 (25.83)
19.	Adoption of farm machinery and implements for energy management	10(8.33)	86 (71.67)	24 (20.00)
20.	Use of ITKs for pest and disease management	8 (6.67)	69 (57.50)	43 (35.83)
21.	Rain water harvesting for irrigating *rabi* crops/ raising of *sali* rice seedlings	7 (5.83)	76 (63.33)	37 (39.17)

It is evident from Table 2 that majority of the respondents (75.00%) had medium degree of information need followed by 16.67 per cent of respondents with high degree of information need. The rest 8.33 per cent of respondents had lowdegree of information need.

The value of co-efficient of variation (23.73%) indicated that the respondents were relatively homogeneous with respect to their degree of information need with reference to climate change adaptation.

Table 2 Distribution of respondents according to degree of information need

(n=120)

Categories	Score range	Frequency (%)	SD	Mean	CV
Low degree of information need	16 – 22	10 (8.33)			
Medium degree of information need	23 – 36	90 (75.00)	7.02	29.58	23.73
High degree of information need	37 – 42	20 (16.67)			
Total		**120 (100.00)**			

Relationship of selected independent variables with information need of farmers

The relationship between the selected independent variables and the dependent variable was found out with the help of Parson Product- Moment Correlation Co-efficient(r). The significance of observed correlation co-efficient was tested with the help of the students "t" ratio at 0.5 and 0.01 level of probability.

Table 3 presents the coefficient of correlation between information need of farmers and 16 independent variables. It is evident from the table that 7 independent variables, *viz.*, Educational level, Family type, Farm size, Social participation, Management orientation, Innovation proneness and Economic motivation had significant positive relationship with the information need of farmers at 0.01 level of probability. While annual income showed significant positive relationship with the information need of farmers 0.05 level of probability, farming experience showed significant negative relationship with the information need of farmers at 0.05 level of probability.

Table 3 Correlation co-efficient between information need and selected independent variables

Sl. No.	Independent Variables	Correlationcoefficient	t-value
1.	Age	-0.102	-1.118
2.	Educational level	0.247^{**}	2.768
3.	Family type	0.443^{**}	5.367
4.	Family size	0.062	0.674
5.	Institutional linkage	0.064	0.696
6.	Training exposure	0.019	0.228
7.	Farm size	0.252^{**}	2.828
8.	Annual income	0.230^{*}	2.567
9.	Social participation	0.214^{**}	2.689
10.	Farming experience	-0.087^{*}	0.948
11.	Management orientation	0.366^{**}	4.272
12.	Innovation proneness	0.262^{**}	2.949
13.	Farm mechanization	-0.020	0.217
14.	Economic motivation	0.449^{**}	5.458
15.	Level of aspiration	0.108	1.180
16.	Risk preference	0.142	1.55

* Significant at 5% level of probability ≥ 1.98 (118 d.f.)

** Significant at 1% level of probability ≥ 2.61 (118 d.f.)

CONCLUSION

Information need in the present study refers to the gap of facts or information between what a respondent perceives he possesses or knows and what he considers he ought to have or ought to know. Findings revealed that among 'mostly needed' areas of information, majority of the respondents (93.33%) expressed that they needed information on diversification of farming system or enterprise, followed by 89.17 per cent of respondents with the need for information on double cropping and 84.17 per cent of respondents with the need for information on integrated pest management. Among 'needed' areas of information, majority of the respondents (74.17%) expressed that they needed information on crop varieties for different climatic conditions, followed by 72.50 per cent of respondents with the need for information on use of organic manures (vermi-compost/compost) and 64.17 per cent of respondents with the need for information on growing of alternate crops for dry spell management. Findings revealed that that majority of the respondents (75.00%) had medium degree of information need followed by 16.67 per cent of respondents with high degree of information need. The rest 8.33 per cent of respondents had low degree of information need.

Finding of correlation analysis indicated that 7 independent variables, viz., Educational level, Family type, Farm size, Social participation, Management orientation, Innovation proneness and Economic motivation had significant positive relationship with the information need of farmers at 0.01 level of probability. While annual income showed significant positive relationship with the information need of farmers 0.05 level of probability, farming experience showed significant negative relationship with the information need of farmers at 0.05 level of probability.

Conflict of interest: It is affirmed that there is no conflict of interest among the authors.

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