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Usage of Knowledge Innovation Repository of Agriculture in the North East (KIRAN) services by the farmers of Meghalaya

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ABSTRACT

ICT tools have become closely intertwined with the lives of the people, as it makes communication easier, faster and cheaper for its users. Knowledge Innovation Repository of Agriculture in North East (KIRAN) is an information portal for agriculture started in the year 2012 by ICAR Research Complex for North-East Region. The focus of the study was on the usage of KIRAN services by the farmers. The study was conducted among the registered farmers of KIRAN in Ri Bhoi district of Meghalaya and it was found that information provided on general aspects in agriculture were used by majority of the farmers (71.70%) with a frequency of sometimes only (61.70%), while other information on alerts, market, finance and trainings were not used by the majority. All kinds of information provided through KIRAN were perceived as useful while information most required was given to market information followed by the information on financial support. Highest priority of perceived benefits of KIRAN was given to minimization of time and distance barriers, followed by the benefit of saving the cost to obtain information as the next priority. Poor socio economic condition of the farmers emerged as the most prominent constraint followed by poor follow-up extension facility.

1. Introduction

In India, there is a vast repository of knowledge and information that can be used to narrow down the information gap but the traditional agricultural extension system for dissemination to the farming community is incapable of delivering services efficiently due to many reasons. In India, more than half of the population of farmers does not have access to any source of information for advanced agricultural technologies resulting in huge adoption gap. While all over India, the ratio of extension personal to farm families is very wide with one extension personal serving more than one thousand farm families. Agriculture in today's scenario is levied with problems due to global climate change and its detrimental impact on

people, farming and livestock which is devastating and said to get worse in the midst of India still struggling to achieve food sufficiency. Under such difficult situations, the farmers are compelled to make more complex decisions, on which information need stands at a pivotal position to sustain the increasingly knowledge intensive agriculture in the state. Private sector organizations are not the only ones taking up knowledge management and information sharing but the systematic sharing of knowledge is assuming a larger role in all kinds of organizations around the world (Luen and Al-Hawamdeh 2001). The realisation of a bottom-up, demand-driven conception for technology generation, assessment, refinement and transfer will be possible through the ICTs in extension that will lead to the emergence of knowledge workers (Meera *et al.*, 2004). Studies suggest that there is a greater possibility of ICT being adopted when the community finds that it incorporates local knowledge (Gonzalez 2004, Ganga Prasad 2004, Roman and Colle 2003).

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Therefore, ICT initiatives in agriculture can serve as a very important channel in supplementing the traditional extension system by reaching more number of farmers in a shorter time and thereby narrowing down the information gap. During the past ten years from 2001 to 2011 in Meghalaya, the telephone users have increased by 47 per cent showing an upward trend and those portions of the population who used no communication sources at all also decreased by 20 per cent and at present, the telephone users in urban population of Meghalaya is 80.9 per cent while in rural population it is only 32.6 per cent, but it is expected to have been increased in the past few years due to its vast technology penetration (GOI, 2011). Looking into this huge mobile technology penetration into the rural lives of Meghalaya, the ICAR Research Complex for North-East Region started an ICT initiative called Knowledge Innovation Repository of Agriculture in the North East (KIRAN) that provides all types of information through the KIRAN portal as well as through the KIRAN SMS Gateway which is a telecommunication network facility for sending Short Message Service (SMS) to meet the information needs of the farmers. Under the SMS gateway tracking service, generic messages are sent in Khasi and English language with a total number of 3854 registered farmers in Meghalaya. The study was conducted to know the usage level of KIRAN services and the constraints faced in using the service by its beneficiaries.

2. Methodology

The study was conducted in Ri-Bhoi district of Meghalaya to study the usage of KIRAN services as it constitutes 77 per cent of the registered farmers under KIRAN. Two villages viz. Umktieh and Mawtneng were selected randomly from Umsning block and a total sample size of 60 registered farmers were selected randomly and interviewed personally with the help of a structured interview schedule. To analyze the information most required by the farmers, perceived benefits of KIRAN and constraints faced by the farmers in using KIRAN, Garrett's ranking formula was used to rank the top priorities of the farmers.

3. Results and Discussion

The distribution of the respondents according to the socio-economic profile as tabulated above shows that majority of the respondents included in the study were young age accounting to 46.70 per cent of the population followed by medium age and old age of 40.00 percent and 13.30 per cent respectively which indicates that the majority of the stakeholders of KIRAN were young and were more oriented towards the use of ICTs. While majority of the respondents in the study area had medium educational qualification consisting of 45 per cent of the population followed by higher secondary education of 26.7 per cent, primary education of 20 per cent and the least of illiterate farmers by 8.30 per cent only which provides the benefit of enabling the respondents to take advantage of ICT initiatives or services to create a knowledgeable and informative society.

Table 1. Distribution of respondents based on their socio-economic characteristics :(n=60)

Sl. No.	Variables	Category	No.	%
1	Age	Young (<35)	28	46.70
		Middle (35-50)	24	40.00
		Old (>50)	8	13.30
2	Education	Illiterate	5	8.30
		Primary education (<5)	12	20.00
		Middle education (5-10)	27	45.00
		Higher secondary and above (>10)	16	26.70
3	Land holding	Marginal (<1 ha)	36	60.00
		Small and semi- medium (1 to 4 ha)	23	38.30
		Medium (4.1 to 10 ha)	1	1.70
4	Income	Low (< 33,750 INR)	30	50.00
		Medium (33,750- 1,44,000 INR)	25	41.70
		High (> 1,44,001 INR)	5	8.30
5	Mass media exposure	Low	9	15.00
		Medium	41	68.30
		High	10	16.70
	Mean= 8.1			
	Standard deviation= 1.42			

Table 2. Distribution of respondents according to the usage of KIRAN: (n=60)

Sl. No.	Items	Usage		Frequency of usage		
		Yes	No	All the time	Sometimes	Not at all
1	Timely reminder/alerts regarding practices.	17 (28.30%)	43 (71.70%)	2 (3.30%)	15 (25.00%)	43 (71.70%)
2	General information on agriculture.	43 (71.70%)	17 (28.30%)	6 (10.00%)	37 (61.70%)	17 (28.30%)
3	Financial support.	9 (15.00%)	51 (85.00%)	1 (1.70%)	9 (15.00%)	50 (83.30%)
4	Training schedule.	21 (35.00%)	39 (65.00%)	5 (8.30%)	16 (26.70%)	39 (65.00%)
5	Market information.	5 (8.30%)	55 (91.70%)	1 (1.70%)	4 (6.70%)	55 (91.70%)

Out of the total respondents under study, 60 per cent of the respondents are marginal farmers with a land holding of less than 1 hectare followed by small farmers medium farmers constituting of 38.3 per cent and 1.7 per cent respectively. Majority of the farmers (50%) were having low income level, while 41.7% of them had medium income level followed by 8.3% with high income level. Further, newspapers and television were the mass media used regularly by majority of the farmers under study which constituted 55 per cent and 66.67 per cent of the population respectively. These mass media were used regularly to get information and for entertainment purpose. Overall, the mass media exposure for majority of the farmers (63.30 per cent) was medium, followed by high mass media exposure and low mass media exposure by 16.7 per cent and 15 per cent of the respondents respectively.

Table 3. Distribution of respondents according to their perceived usefulness of KIRAN: (n=60)

Sl. No.	Items	Yes	No
1	Timely reminder/alerts regarding practices.	37 (61.67%)	23 (38.33%)
2	General information on agriculture.	55 (91.67%)	5 (8.33%)
3	Financial support.	42 (70.00%)	18 (30.00%)
4	Training schedule.	56 (93.33%)	4 (6.67%)
5	Market information.	51 (85.00%)	9 (15.00%)

Usage of KIRAN

In terms of usage of the KIRAN services we can see (Table 2) that majority of the farmers (71.70 per cent) are using the general information on opportunities, technologies and scopes in agriculture which are provided through SMS on the registered mobile phones of the farmers, while these majority were using the information sometimes only by

61.70 per cent among the users. Other information related to timely reminder/ alerts regarding practices, financial support information on loans or schemes, training schedules organized by the ICAR and marketing information were not used by majority of the farmers with only 28.30 per cent using the timely alerts, 15 per cent using the information on financial support, 35 per cent using the training schedule information and only 8.3 per cent using the market related information.

Table 4. Distribution of respondents according the information most required: (n=60)

Sl. No.	Items	Score	Rank
1	Market information.	34.64	I
2	Financial support.	33.28	II
3	General information on agriculture.	32.14	III
4	Training schedule.	31.91	IV
5	Timely reminder/alerts regarding practices.	18.63	V

Perceived usefulness of KIRAN

The perceived usefulness of KIRAN services (Table 3) according to the farmers view states that majority of the farmers perceived that the information provided to them through KIRAN were all useful, which was similar with the result of *Rani et al.* (2015) with many farmers responding that even though they do not use or adopt the information at present or quite regularly, it helps them to gain knowledge which they believe such information will be of use in the future. While only a few per cent denying its usefulness, they remarked that they don't have enough resources to undertake such improved practices which become less useful unless they are able to put such information into use.

Information most required

The information most required by the farmers were rated according to the respondent's opinion and ranked with the help of Garrett's Ranking technique. Accordingly, from table 4, the information most required by the farmers were information related to market with a score of 34.64 which will fetch them with better returns because during the glut season, the farmers are left with no option than to sell their produce at a very low price as they do not have any infrastructure to preserve and go for off season sale.

Table 5. Perceived benefits of KIRAN by the farmers: (n=60)

Sl. No.	Items	Score	Rank
1	Minimize time and distance barriers	38.96	I
2	Reduction in transaction cost	35.55	II
3	Easy and convenient access to information	31.06	III
4	Improve the quality of decision making	29.15	IV
5	Reliable and timely information	28.28	V
6	More subject matter coverage	25.72	VI
7	Farmers needs are met	21.28	VII

The second most information required by majority of the farmers under study were information on financial support with a score of 33.28, as the farmers' purchasing power were very low. The third most required information by the farmers were general information according to their needs which will enable the farmers to improve their cultivation and get better returns followed by information on training schedule as the farmers have the felt need to learn about improved practices related to agriculture, if given the opportunity. The information least required by the farmers were alerts or reminders regarding weather forecasts. There was an increased realization about the potential benefits that KIRAN can offer.

Perceived benefits of KIRAN

The farmers perceived that KIRAN is very beneficial (Table 4) as it minimizes time and distance barriers with a score of 38.96 giving the highest priority, because the information comes directly to their mobile without having to go to distant places followed by the next top priority of benefit of saving the cost to obtain information with a score

of 35.55, as they do not have to spend any extra amount in obtaining information. The top priorities of perceived benefits were similar with the result of Anbarasan *et al.* (2012) in the usage of e-velanmai in Tamil Nadu. Easy and convenient access to information was given the top third priority with a score of 31.06, as the farmers remarked that the SMS comes directly to their mobile phones which they already have access to. The fourth most frequently mentioned priority was improving the quality of decision making, while the fifth and sixth priority was given to its reliability and timeliness followed by more subject coverage respectively. The last priority was given to the statement where the farmers needs are met because the farmers feel that information alone does not meet their needs and have to be supplemented with other factors too.

Constraints

The use of Information and Communication Technology in agriculture is in a nascent phase, and the farmers face many problems. In table 6, with the help of Garrett's ranking, poor socio- economic condition was found to be the most prominent constraint as the farmers could not afford to purchase inputs to improve their cultivation even though they have access to information. The second most prominent constraint was poor follow-up extension facility with a score of 39.18 as the farmers lack skill and confidence in them to adopt or use the new practices all by themselves. Insufficient location specific information with a score of 34.36 was ranked as the third most prominent constraint as the messages provided to the farmers were general in nature and could not suit the diverse activities of every farmer. The fourth most prominent constraint was given to lack of quality, timely and unreliable information with a score of 32.41 as the farmers sometimes get the messages only after they have already performed the cultivation activities. Lack of infrastructure facilities and inadequate mobile phone connectivity were scored as the fifth and sixth prominent constraint as the village sometimes suffer from erratic power supply and low network signal. Negative attitude of people towards using ICT was ranked as the seventh constraint because majority had favourable attitude towards the use of ICT by perceiving as useful, timely and cost saving. Difficulty in understanding the message was perceived as a problem by very less farmers because the messages were sent in both Khasi and English language. Lack of skill in operating mobile phone was found to be a minor constraint since it was ranked last.

Correlation of the socio-personal characteristics of the respondents with the usage of KIRAN

The socio-personal characteristics of the respondents under study were correlated with the usage of KIRAN with the help of SPSS and found that age, education and mass media had no correlation with the usage of KIRAN, which implies that these factors do not have an impact on its users. While land holding and level of income of the respondents correlated negatively and significantly with the usage of KIRAN at 5 per cent level of significance which means that the farmers who were under low land holding and low income category were more enamored by the system.

Conclusion

The attitude of the people towards ICT were found positive but due to poor socio economic condition, the farmers are not in a position to use the information provided due to their poor purchasing power. So, financial institutions can come forward to provide financial assistance or subsidies required. Also, follow up activities can be strengthened to make the project more effective by enabling both push and pull mechanism. Messages can be made location specific and tailor made as per the needs of the locality and market information can be provided to the farmers as it is the information most required by the farmers.

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Table 6. Constraints experienced by the farmers:

(n=60)

Sl. No.	Items	Score	Rank
1	Poor socio-economic condition	43.57	I
2	Poor follow-up extension facility	39.18	II
3	Insufficient location specific information	34.36	III
4	Lack of quality, timely and unreliable information	32.41	IV
5	Lack of infrastructure facilities	29.68	V
6	Inadequate mobile phone connectivity	26.79	VI
7	Negative attitude of people towards using ICT	24.96	VII
8	Difficulty in understanding the message	22.51	VIII
9	Lack of skill in operating mobile phone	17.14	IX

Table 7. Correlation of the socio-personal characteristics of the respondents with the usage of KIRAN

Sl. No.	Independent variables	Pearson coefficient	p- value
1	Age	0.038	0.775
2	Education	-0.178	0.174
3	Land holding	-0.301*	0.020
4	Income	-0.288*	0.026
5	Mass media exposure	-0.047	0.722

*. Correlation is significant at the 0.05 level (2-tailed).