

Original Research Article

Usefulness of Mobile Phone based Agro-advisories in Manipur, North-Eastern India

Comment [AS1]: Add state/region and country in the title

Abstract

Mobile phones are ~~the~~ devices that can help to improve the livelihoods of rural people by getting much needed timely information to their fingertips at potentially low cost. Manipur is one of the North-Eastern states of India, covering an area of 22,327 sq km which nearly accounts for 0.7 per cent of the total land surface of India. ~~The~~ ~~This~~ study was conducted in Bishnupur, Thoubal, Kakching, Imphal East and Imphal West districts of Manipur with 110 nos. of randomly selected respondents. It was observed that majority of the respondents (70.91 %) perceived that mobile based agro-advisories are early in terms of timeliness of the messages and 73.64 per cent of the respondents mentioned that the messages are highly relevant.

Comment [AS2]: Write in full

Comment [AS3]: Include 'selected'

Comment [AS4]: Add 1-2 sentences describing the methods taken to get the results presented in the subsequent lines 12-18

Formatted: Indent: First line: 0"

In terms of understanding of message, 98.18 per cent of respondents responded that messages are easy to understand, less technical (58.18 %) and adequate (83.64 %) in terms of message treatment and content adequacy respectively. Mobile phone based agro-advisories is more useful (83.64%) in weather forecasting followed by plant protection measures (82.73%), improving the knowledge in agriculture and allied sector (80.91 %) and fish health management (80.00 %). Majority of the respondents (68.18 %) had positive perception towards mobile based agro-advisories followed by 4.55 per cent had negative perception towards the advisories.

Comment [AS5]: Add 1-2 sentences explaining the conclusion and recommendation from the study based on the findings/data presented.

Formatted: Font: Not Bold

Comment [AS6]: Add country name 'India' to this list

Comment [AS7]: Which state? Name the state!

Key Words: Mobile phone, Agro-advisory, Usefulness,

Introduction

Agriculture in the state could benefit tremendously with the application of ICTs (Information and Communication Technologies) especially in bringing changes to socio-economic conditions of the poor in the backward areas. Therefore, different initiatives in IT sector were launched in the state to provide the agro-advisory to farmers (Singh *et. al.*, 2019). The most widespread ICTs in developing countries today are the mobile phones. Mobile phones are the devices that can create, store, access and share information anytime, anywhere. But, they are more than that, when teamed with extension and advisory services, they can help improve the livelihoods of rural people by getting much needed timely information to their fingertips at potentially low cost (Reddy *et. al.*, 2017). Among the initiatives, a mobile based agro-advisory system was launched under the project of "Mobile based agro- advisory system" by the Central Agricultural University, Imphal, Manipur in the state of Manipur. ~~It~~ The Mobile based agro-

Comment [AS8]: Rephrase this statement; use instead ' remote locations or rural areas'

Comment [AS9]: Write in full upon first use 'IT'

32 advisory system is a mobile based pull and push system where agriculture and allied sector
33 related information can be pulled and/ or pushed by the farmers using their mobile phones.

34 Manipur is one of the North-Eastern states of India, covering an area of 22,327 sq km
35 which nearly accounts for 0.7 per cent of the total land surface of India. The state is unique in
36 producing varieties of paddy. Agriculture being the backbone of the state economy and paddy
37 rice is the dominant crop grown by farmers in Manipur. Imphal West district is classified under
38 high productivity of paddy rice in the state of Manipur (Thangjam, 2020). Area under paddy
39 cultivation in the state is 225.77 thousand ha with a production of 602.21 thousand MT
40 (Anonymous, 2020-21). Keeping this in view, this study was undertaken to find out the assessed
41 the usefulness of mobile phone based agro-advisories in Manipur

Comment [AS10]: Add rice

42 **Methodology:**

43 The study was conducted in Bishnupur, Thoubal, Kakching, Imphal East and Imphal
44 West districts of Manipur with 110 nos. of randomly selected project benefeciariesbeneficiaries.
45 The perception of the respondents towards mobile phone based agro-advisories in terms of
46 timeliness of the messages, relevance, understanding of message, message treatment and content
47 adequacy were studied and measured in terms of frequency and percentage. Usefulness of mobile
48 phone based agro-advisories by the respondents were measured in terms of level of usefulness,
49 viz., most useful, useful and not useful category; frequency and percentage were calculated for
50 each category. Overall parameters of mobile phone based agro-advisories by the respondents
51 were also calculated. A wellstructured interview schedule guided by pre-determined questions/
52 guide questionnaire was used to collect the data according to the objectives of the study.
53 Statistical tools like mean, frequency and percentages were used for analysis of data.

Comment [AS11]: At this level, please mention the parameters

Comment [AS12]: Select what was used or the key parameters.

Comment [AS13]: Re-write this sentence please: Example

GenStat Statistical software was used to analyses the data. The data from the responses were computed using mean, frequency and percentages functions in GenStat. The significance level was determined at 95% confidence intervals.

54 **Results and Discussion:**

55 The perception of respondents towards mobile based agro-advisories is presented in
56 Table 1. Data presented in Table 1 reveals that majority of the respondents (70.91 %) perceived
57 that mobile based agro-advisories are early in terms of timeliness of the messages and 73.64 per
58 cent of the respondents responded that the messages are highly relevant. The Table 1 also reveals
59 that in terms of understanding of message 98.18 per cent of respondents observed that messages
60 are easy to understand, message is less technical (58.18 %) and adequate (83.64 %) in terms of
61 message treatment and content adequacy respectively.

Comment [AS14]: The results are well-presented but the section lacks the discussion component. I suggest as below.

option 1:
In this section, you have only presented the results. There is no Discussion component; please include statements relating your results/data/finding to present or past studies from the literature.

Option 2: (Strongly recommended)

If not so, create another section for discussion And make 2-3 paragraph relating your results to literature: the results could be consistent or differing with the results from similar studies. at the end of each statement, state the reasons why they are similar or different in comparison to the literature.

62 **Table.1 Perception of the respondents towards Mobile Phone based Agro-advisories**

Parameter	Category	Frequency	Percentage
a. Timeliness of the messages			
	Coinciding with the farm activity	8	7.27
	Early	78	70.91
	Late	24	21.82
b. Relevance			
	Highly relevant	81	73.64
	Somewhat relevant	25	22.73
	Irrelevant	4	3.64
c. Understanding of message			
	Easy to understand	108	98.18
	Difficult to understand	2	1.82
	Not understand	0	0
d. Message treatment			
	Less technical	64	58.18
	Moderately technical	41	37.27
	Highly technical	5	4.55
e. Content adequacy			
	Adequate	92	83.64
	Needs more details	12	10.91
	Not at all adequate	6	5.45

64

65 The usefulness of mobile phone based agro-advisories is presented in Table 2. Data
66 presented in Table 2 reveals that mobile phone based agro-advisories is more useful (83.64 %) in
67 weather forecasting followed by plant protection measures (82.73%), improving the knowledge
68 in agriculture and allied sector (80.91 %) and fish health management (80.00 %). The Table 2
69 also reveals that majority of the respondents (65.45 %) observed that messages are useful for
70 animal breeding management followed by information about new technologies, selection of crop
71 & variety and sale of produce with 60.91 per cent, 58.18 per cent and 56.36 per cent respectively.
72 Highest percentage of respondents (20.91%) mentioned that agro-advisories related to
73 information about new technologies is not useful followed by fish production techniques (19.09
74 %), animal health management (15.45 %) and fish pond preparation (13.64 %).

75 **Table 2: Usefulness of Mobile Phone based Agro-advisories by the respondents**

76 (N=110)

Sl. No.	Particulars	Level of Usefulness		
		Most Useful	Useful	Not Useful

		F	%	F	%	F	%
1.	Improving the knowledge in agriculture and allied sector	89	80.91	19	17.27	2	1.82
2.	Information about new technologies	20	18.18	67	60.91	23	20.91
3.	Selection of crop and variety	36	32.73	64	58.18	10	9.09
4.	Use of fertilizer and other micronutrients	69	62.73	34	30.91	7	6.36
5.	Seed purchase and seed bed preparation	41	37.27	56	50.91	13	11.82
6.	Land preparation and planting/sowing	64	58.18	43	39.09	3	2.73
7.	Nutrient management	48	43.64	58	52.73	4	3.64
8.	Seed treatment	71	64.55	37	33.64	2	1.82
9.	Weed management	39	35.45	61	55.45	10	9.09
10.	Plant protection measures	91	82.73	17	15.45	2	1.82
11.	Harvesting/picking and storing	50	45.45	54	49.09	6	5.45
12.	Sale of produce	28	25.45	62	56.36	20	18.18
13.	Animal health management	35	31.82	58	52.74	17	15.45
14.	Animal feeding management	44	40.00	56	50.91	10	9.09
15.	Animal shelter management	59	53.64	36	32.73	15	13.64
16.	Animal breeding management	29	26.36	72	65.45	9	8.18
17.	Fish health management	88	80.00	18	16.36	4	3.64
18.	Water management in fish pond	67	60.91	55	50.00	2	1.82
19.	Fish pond preparation	44	40.00	51	46.36	15	13.64
20.	Fish production techniques	39	35.45	50	45.45	21	19.09
21.	Market information	37	33.64	59	53.64	14	12.73
22.	Weather forecasting	92	83.64	12	10.91	6	5.45

77 **F= Frequency, %= Percentage**

78
79 The overall parameter of mobile based agro- advisories by the respondents is presented in
80 Table 3. Data presented in Table 3 reveals that majority of the respondents (68.18 %) has
81 positive perception towards mobile based agro- advisories followed by 4.55 per cent has negative
82 perception towards the advisories. The Table 3 also reveals that 52.73 per cent of respondents
83 has moderate usefulness of the messages, 55.45 per cent has highly satisfied with the messages
84 whereas 50.00 per cent of the respondents showed it as very much problem solving and 71.82 per
85 cent of as very much need based.

86 **Table 3: Overall parameter of Mobile Phone based Agro-advisories by the respondents**

87 (

88 **N=110)**

Parameter	Category	Frequency	Percentage
------------------	-----------------	------------------	-------------------

Perception			
	Positive	75	68.18
	Neutral	30	27.27
	Negative	5	4.55
Usefulness			
	Most useful	43	39.09
	Moderate useful	58	52.73
	Less useful	9	8.18
Performance			
	Highly satisfied	61	55.45
	Moderately satisfied	47	42.73
	Not satisfied	2	1.82
Problem solving			
	Very much	55	50.00
	Moderate	51	46.36
	Not at all	4	3.64
Need based			
	Very much	79	71.82
	Moderate	23	20.91
	Not at all	8	7.27

89

90 **Conclusion:**

91 It may be concluded that use of mobile phone networks for dissemination of agricultural
92 knowledge as one of the powerful means of increasing access to quality information to farmers
93 who may not be reached by the extension programmes. To provide the agro-advisory in
94 sustainable manner, the convergence of such type of programmes with state line departments,
95 KVVVs is highly recommended so that it will help to uplift the livelihood of rural mass. With
96 the increased availability, access and ownership of mobile phones in India, mobile based agro-
97 advisories would play a significant role in reducing the information gap and information
98 asymmetry between the farmers.

99

100 **References:**

101 Ram Singh, M. Premjit Singh, R.K. Singh and J.K. Chauhan (2019), A Study on Mobile Based
102 Agro-advisory in Meghalaya. *Indian Journal of Extension Education* Vol. 55, No. 1 (January-
103 March), 2019, (71-77).

104

Comment [AS15]: In the conclusion section, Please align your conclusion statements to the results specific from this study. In other words, each set of results (or table) should have a statement depicted in the conclusion statement.

Do the same for the recommendation based on the findings from each table/ study component.

Comment [AS16]: The references are shallow, simply because there is no Discussion statements in the 'Results & Discussion Section' relating your results with literature.

Please refer to the comments above and enrich the

105 K. Madan Mohan Reddy, I. SreenivasaRao , M. Srinivasulu and G. D. Satish Kumar (2017),
106 Perception and Usefulness of Mobile Phone Based Agro-Advisories (MBAs). *International*
107 *Journal of Current Microbiology and Applied Sciences* ISSN: 2319-7706 Volume 6 Number 7
108 (2017) pp. 866-872.

109

110 *Anonymous* (2020-21). Agriculture Department: Manipur Area, Production and Yield for the
111 year 2020-21.

112

113 BidyapatiThangjam and Kaushal Kumar Jha (2020),*Plant Archives*. **20**(1), 2020 pp. 1229-1234.

114