

## Assessing Tribal Farmers' Preferences for Mobile Agro-advisory Services in Koriya District of Chhattisgarh

<sup>1</sup> P.K. Tiwari; Divya Tiwari<sup>2</sup>; RPM Tripathi<sup>3</sup> and Sandeep Sharma<sup>4</sup>

<sup>1</sup> Asstt. Professor (Agril. Ext.), IGKV-College of Agriculture & Research Station, Koriya (C.G.)

<sup>2</sup> Asstt. Professor-cum-Jr. Scientists (Pomology), Nalanda College of Horticulture, Noorsarai, Nalanda-803113 under Bihar Agricultural University, Sabour Bhagalpur, Bihar.

<sup>3</sup> Dr. R.P.M. Tripathi, Professor (Agril Extension), BRD PG College, Deoria affiliated to DDU, Gorakhpur Univ. Gorakhpur, Uttar Pradesh.

<sup>4</sup> Subject Matter Specialist (Agronomy), Krishi Vigyan Kendra, Koriya (C.G.)

<sup>1</sup> Corresponding Author : tewaripk73@gmail.com

### ABSTRACT

The present study was carried out in Koriya district of north-east hill region of Chhattisgarh during the year 2014 to understand the service preferences of the mobile agro advisory services offered by the public extension system. The agro advisories offered by the Directorate of Extension Services of Indira Gandhi Krishi Vishwavidyalaya (IGKV) was selected for the study. A sample of 200 respondents' was selected proportionately applying proportionate random sampling method. The study was confined in terms of dimensions viz. Technical Components, Message Frequency and Timings, Message Physical Dimensions. It is depicted from the investigation that the majority of the respondents among the technical components stated that the information on advance warning of weather risks was very much adequate, the messages on crop disease, pesticide related information and cultivation techniques were relevant while the messages on crop disease, fertilizer application techniques, pesticide related information, cultivation techniques, price of raw materials were timely. A majority preferred frequency of the messages on daily basis and preferred to receive messages during mornings and evening hours. About two-third majority preferred the regular length of 50 – 100 words per message, little bit less than half of the majority (42%) preferred message in hindi language, 97 per cent majority preferred the text form of message through SMS channel.

**Keywords:** District Koriya, Agro-advisory Service; Mobile Phone; Preferences; Message Dimensions

Received 02/05/2017

Revised 24/06/2017

Accepted 23/08/2017

### Citation of this article

P.K. Tiwari; Divya Tiwari; RPM Tripathi and Sandeep Sharma. Assessing Tribal Farmers' Preferences for Mobile Agro-advisory Services in Koriya District of Chhattisgarh. Int. Arch. App. Sci. Technol; Vol 8 [3] September 2017.110-115.

### INTRODUCTION

Mobile phone is a key component of agricultural development of farmers to improve the production and productivity of agricultural cultivation. Agricultural Universities, Krishi Vigyan Kendras, Private Sectors' and Non-government Organizations frequently used to send agricultural information to the farming community in all over India through the Short Message Services (SMS) and Voice Calls. Messages containing the information related to the agricultural inputs such as seeds, fertilizers and improved package of practices, plant protection techniques, harvesting, post-harvest techniques, weather forecasting and other location based specific information are sent to the farmers. A national survey of farmers had found that only 40 per cent of farmer households accessed information about modern agricultural techniques and inputs [1]. The importance of information in market efficiency, suggesting that mobile phones can play a crucial role in poverty reduction by facilitating access to relevant market information [2]. The study in Kerala demonstrates that the mobile phones allowed fishermen to quickly and easily communicate with wholesalers about prices across different markets, leading to a more efficient allocation of fish and a reduction in price differences between locations [3]. In overall Information and Communication Technologies (ICTs) usage and applications, the mobile phone has been regarded as a more accessible and less expensive means to bridge the digital divide [4, 5]. With regard to the usage of mobile phone networking in agricultural development, Chhattisgarh has huge number of farmers subscribed to the mobile agro advisory services from public, private and NGOs sectors. Among the public sector mobile agro

service providers viz. Indira Gandhi Krishi Vishwavidyalaya (IGKV) and State Department of Agriculture are providing SMS advisories to the farmers in Chhattisgarh. Among these, IGKV is the prominent technology provider and its subscribers density, geo-graphical coverage and technology coverage are comparatively higher and hence SMS based agro advisories of IGKV was selected for the present study. The Directorate of Indira Gandhi Krishi Vishwavidyalaya facilitates the SMS agro-advisory services in Chhattisgarh. The main objective of the present study is to understand the Tribal farmers' preferences of mobile agro-advisory services in Chhattisgarh state.

## MATERIAL AND METHODS

The study was conducted in Koriya district of north-east hill region of Chhattisgarh in 2014 considering the huge subscription by tribal farmers in the district. Bikunthpur and Khadgawan blocks of Koriya district were selected for the investigation considering the coverage of subscribers of the service. The sample size for the study comprised sum of 200 tribal farmers respondents from both the blocks i.e 113 from Baikunthpur block and 87 from Khadgawan block were selected by applying proportionate random sampling method. An ex-post-facto research design was implied and the data were collected through personal interview method with the help of structured questionnaire. The data were recorded, coded and tabulated. The statistical tools viz. frequency, percentage, matrix, ranking were used to analyze the data and research findings was compiled and interpreted. Service preference attributes were assessed in terms of adequacy, relevancy and timeliness for technical components viz. Cultivation Techniques, New Crop Varieties, Crop Disease, Seeds, Fertilizers Application Techniques, Pesticides related information, Advance Warning of Weather Risks, Cold Storage Facilities & Networks, Transportation Facilities, Price of Raw Materials, Price of Local Markets, Price for Export and Training of Technical Skill etc.; message frequency and timings, physical dimension of message viz. length of message, language of message, form of message and message channel in the present investigation.

## RESULTS AND DISCUSSION

**Technical Components:** Respondents' preferences were assessed with the response categories such as adequacy (adequate or inadequate); relevancy (relevant or not relevant) and timeliness (timely or untimely) under the technical components.

**Message Adequacy:** It is crystal clear from the findings of the Table 1 that the majority of respondents (93.50%) opined that the technical input on advance warning of weather risks was adequate followed by pesticide related information (84.50%), crop disease (80.50%), fertilizers application techniques (78.50%), training of technical skill (61.50%), price of raw materials (53.00%). Further, with regard to the inadequate services, 96.50 per cent of the respondents had expressed that the price for export followed by information on new crop varieties (91.50%), price for local market (87.50%), cold storage facilities & networks (82.00%), transportation facilities (76.50%), Seeds (68.00%), cultivation techniques (56.50%) and price of raw materials (47.00%) were felt inadequate.

**Table 1: Service preferences of the respondents for technical component (n=200)**

Sl. No.	Particulars	Adequacy*				Relevancy*				Timeliness*			
		Adequate		Inadequate		Relevant		Not relevant		Timely		Untimely	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1.	Cultivation Techniques	87	43.50	113	56.50	141	70.50	59	29.50	188	94.00	12	6.00
2.	New Crop Varieties	17	8.50	183	91.50	34	17.00	166	83.00	76	38.00	124	62.00
3.	Crop Disease	161	80.50	39	19.50	189	94.50	11	5.50	192	96.00	8	4.00
4.	Seeds	64	32.00	136	68.00	75	37.50	125	62.50	99	49.50	101	50.50
5.	Fertilizers Application Techniques	157	78.50	43	21.50	186	93.00	14	7.00	191	95.50	9	4.50
6.	Pesticides related information	169	84.50	31	15.50	159	79.50	41	20.50	189	94.50	11	5.50
7.	Advance Warning of Weather Risks	187	93.50	13	6.50	163	81.50	37	18.50	156	78.00	44	22.00
8.	Cold Storage Facilities & Networks	36	18.00	164	82.00	49	24.50	151	75.50	23	11.50	177	88.50
9.	Transportation Facilities	47	23.50	153	76.50	83	41.50	117	58.50	41	20.50	159	79.50
10.	Price of Raw Materials	106	53.00	94	47.00	101	50.50	99	49.50	162	81.00	38	19.00
11.	Price of Local Markets	25	12.50	175	87.50	116	58.00	84	42.00	112	56.00	88	44.00
12.	Price for Export	7	3.50	193	96.50	11	5.50	189	94.50	11	5.50	189	94.50
13.	Training of Technical Skill	123	61.50	77	38.50	134	67.00	66	33.00	92	46.00	108	54.00

\* Multiple responses

**Message Relevancy:** It is apparent from the Table 1 that the majority of the respondents expressed that they received relevant messages on crop disease (94.50%) followed by fertilizer application techniques (93.00%), advance warning of weather risks (81.50%), pesticides (79.50%), cultivation techniques (70.50%), training of technical skill (67.00%), price of local markets (58.00%) and price of raw materials (50.50%) while information related to the price for export, new crop varieties, cold storage facilities and networks, seeds, transport facilities and price of raw materials were expressed by the 94.50, 83.00, 75.50, 62.50, 58.50 and 49.50 per cent respondents respectively as not relevant information.

**Message Timeliness:** It is revealed from the Table 1 that majority (96.00%) of the respondents had expressed that they received timely messages on crop disease followed by fertilizer application techniques (95.50%), pesticide related information (94.50%), cultivation techniques (94.00%), price of raw materials (81.00%) and advance warning of weather risks (78.00%). Further, it is also considered the receipt of some of the messages as untimely such as those related with the price for export, cold storage facilities and network, transport facilities, new crop varieties, training of technical skill and seeds by the 94.50, 88.50, 79.50, 62.00, 54.00 and 50.50 per cent respondents respectively.

**Preferred Frequency of Messages:** The ideal frequency of messages depends on the communication channel, the relationship between sender and recipient, and the purpose of the messages. Generally, a balance needs to be struck between being present and not overwhelming the recipient during the communication process. The distribution of respondents according to their preferred frequency of the message is presented in Table 2.

**Table 2: Distribution of Respondents according to their preferred frequency of the Messages**

(n=200)

Sl. No.	Preferred frequency of the messages	Number	Percentage
1.	Occasionally	13	6.50
2.	Daily	119	59.50
3.	Once in 2 days	29	14.50
4.	Once in a week	23	11.50
5.	Once in a fortnight	11	5.50
6.	Once in month	5	2.50
<b>Total</b>		<b>200</b>	<b>100</b>

It is found from the Table 2 that majority of the respondents (59.50%) preferred to receive the messages on daily basis, followed by 14.50 per cent respondents preferred to receive the messages once in 2 days, once in a week (11.50%), occasionally (6.50%), once in fortnight (5.50%) and the rest 2.50 per cent of the respondents preferred to receive the messages once in a month.

**Preferred Time of Receiving Messages:** The best time to send a message for optimal reception depends on the communication channel and the recipient's context. For professional settings, particularly emails, sending during business hours is generally most effective. For urgent matters, synchronous communication like phone calls or instant messaging might be preferred. The distribution of respondents according to their preferred time of receiving the message is presented in Table 3.

**Table 3: Distribution of Respondents according to their preferred time of receiving the Messages**

(n=200)

Sl. No.	Preferred timing of receiving the messages	Number	Percentage
1.	Morning Hours	69	34.50
2.	Evening Hours	79	39.50
3.	During Night	36	18.00
4.	Anytime	16	8.00
<b>Total</b>		<b>200</b>	<b>100.00</b>

It is depicted from the Table no. 3 that the majority of the respondents (39.50%) preferred to receive the messages during Evening Hours, followed by 34.50 per cent of the respondents' preferred the timings of receiving the messages during Morning Hours. Further, 18.00 and 8 per cent respondents showed their preferences during Night and anytime respectively.

**Physical dimensions of message:** The "physical dimensions" of a message refer to the tangible aspects of how a message is conveyed including both verbal and nonverbal cues. These dimensions influence how a message is received and interpreted by the audience. Key elements include the verbal content words used. The specific language used, vocabulary, and sentence structured are all part of the verbal dimensions. The respondents' preferred physical dimensions of message *viz.* length of message, language usage, form of message and channel of message is quantified in this investigation.

**Preferred Length of the Messages:** The ideal length of a message in communication depends on the medium and the context. Generally, shorter messages are preferred for quick interactions like SMS and social media, while emails can be slightly longer but the optimal length can vary. The distribution of respondents according to their preferred length of the messages is presented in Table 4.

**Table 4: Distribution of respondents according to their preferred length of the messages**

(n=200)

Sl. No.	Preferred length of the messages	Number	Percentage
1.	Regular length as 50 – 100 words	152	76.00
2.	Length as 100 – 150 words	17	8.50
3.	Length as 150 – 180 words	11	5.50
4.	Length as 180 – 200 words	12	6.00
5.	Length as more than 200 words	8	4.00
<b>Total</b>		<b>200</b>	<b>100</b>

It could be observed from the Table 4 that a huge majority of the respondents (76.00%) stated that the regular length 50-100 words of the messages was on their choice followed by 8.50 per cent; 6.00 per cent; 5.50 per cent and 4.00 per cent of the respondents preferred their choice of length as 100 – 150 words; length as 180 – 200 words; length as 150 – 180 words and length as more than 200 words per message respectively.

**Preference on the Language Usage:** The message language form refers to the specific way by which a message is encoded and expressed which involves different kind of languages. Different forms of message language are used depending on the context and the desired outcome of the communication. The distribution of the respondents according to their preferred language is presented in Table 5.

**Table 5: Distribution of Respondents according to their preferred language usage of the Messages**

(n=200)

Sl. No.	Preferred language usage of the messages	Number	Percentage
1	Local Language	37	18.50
2	Scientific Terminologies	11	5.50
3	Hindi Language	84	42.00
4	English Language	8	4.00
5	Mix Up Local with Hindi	57	28.50
6	Mix Up Local with English	3	1.50
<b>Total</b>		<b>200</b>	<b>100</b>

It is observed from the Table 5 that little less than half of the respondents (42.00%) preferred the message strictly to be there in Hindi language followed by 28.50 per cent of the respondents stated that the mix up with local with Hindi language preferred by them. Further, 18.50 per cent; 5.50 per cent; 4.00 per cent and 1.00 per cent respondents stated their preferences with reference to the language as local language, scientific terminologies; English language and mix up local with English language was preferred respectively with regard to the SMS based advisories.

**Form of the Messages:** The most preferred form of communication depends on the situation and individual preferences, but generally, clear and concise messages are favored across all mediums. In many contexts, email is considered effective for formal communication and sharing detailed information, while instant messaging and texting are preferred for quick updates and informal interactions. The distribution of respondents according to their preferred form of the messages is presented in Table 6.

**Table 6: Distribution of respondents according to their preferred form of Messages**

(n=200)

Sl. No.	Form of Messages	Number*	Percentage
1.	Text alone	195	97.50
2.	Text supported with audio	93	46.50
3.	Text supported with Video	127	63.50
4.	Text supported with pictures	113	56.50
5.	Text supported with audio-video	116	58.00

\* Multiple responses

It is clear from the Table 6 that 97.50 per cent of the respondents preferred only text based messages followed by nearly one-third majority of the respondents (63.50%) preferred text messages with video,

58.50 per cent preferred as text supported with audio-video, 56.50 per cent preferred as text supported with pictures. Forty six per cent of the respondents' preferred only text supported with audio messages.

**Message Channel:** A message channel is the medium or path through which a message travels from a sender to a receiver. It's the means by which information is conveyed, and it plays a crucial role in how effectively a message is received and understood. Now a days SMS, Whatsapp, Telegram, Instagram, E-mails, Facebook, Twitter and social media like Blogs, LinkedIn etc. are commonly used to convey the messages in different forms that's why these tools of communication taken in consideration for present study and the distribution of respondents according to their preferred message channel is presented in Table 7.

**Table 7: Distribution of respondents according to their preferred message channel**

(n=200)

Sl. No.	Preferred frequency of the messages	Number*	Percentage
1.	SMS	189	94.50
2.	Whatsapp	129	64.50
3.	Telegram app	18	9.00
4.	Instagram app	15	7.50
5.	E-mails	53	26.50
6.	Facebook	69	34.50
7.	Twitter	25	12.50
8.	Other social media tools like Blogs / LinkedIn / others	41	20.50

\* Multiple responses

It is revealed from Table 7 that 94.50 per cent of the respondents preferred to receive messages through SMS, followed by 64.50 per cent of the respondents' preferred Whatsapp mode and 34.50 per cent of the respondents' preferred social media Facebook. Further, study reveals that 26.50 per cent of the respondents showed their interest in E-mails and 20.50 per cent of the respondents showed their interest in other social media tools like Blogs/LinkedIn as their choice of channels while 12.50 per cent, 9.50 per cent and 7.50 per cent of the respondents showed their interest in Twitter, Telegram and Instagram app respectively.

## CONCLUSION

The farmers' preferences of mobile agro-advisory services were assessed in this study in Koriya district of north-east hill region of the Chhattisgarh state. According to the findings of the investigation, messages on Cultivation techniques, New crop varieties, Seeds, Crop Disease, Fertilizer application techniques, Pesticide related information, Advance warning of weather risks and Price of raw materials were felt as adequate, relevant and timely messages preferred by the farmers. But messages on Cold storage facilities, Transportation facilities, Price for local markets and price for export were felt as inadequate, irrelevant and untimely stated by the farmers. Most of the farmers preferred to receive messages on daily basis and during morning and evening hours. Farmers preferred the regular length 50 – 100 words per message and strict use of Hindi language. The farmers preferred text form of messages through SMS mode. Timeliness is an important factor that significantly impacts agricultural information to a great extent. Late or too early messages do not have much beneficial for the farmers. In addition to the text messages, audio, video, picture to be supported to the text message need to be initiated to make them more interactive and influenced to the changing needs of the next generation users and mobile phones. Agricultural information should be beyond the regular length of the messages is to provide clarity of information for the farmers.

## AUTHOR'S CONTRIBUTION

Conceptualization and designing of the research work (PKT); Execution of field/lab experiments and data collection (PKT); Analysis of data and interpretation (PKT; DT, RPMT: SS); Preparation of manuscript (PKT:DT:RPMT).

## DECLARATION

The authors have no conflicts of interest to declare that all concern authors have seen and agree with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

## REFERENCES

1. Aker, J.C. (2008). Does Digital Divide or Provide? The Impact of Mobile Phones on Grain Markets in Niger. *BREAD Working Paper*, 177 pp.
2. Jensen, R. (2007). The Digital Provide: Information (Technology) Market Performance and Welfare in the South Indian Fisheries Sector, *The Quarterly Journal of Economics*, **122(3)**: 879-924 pp.
3. NSSO.(2005). Situation assessment survey of farmers: Access to modern technology for farming. National sample survey, 59th round Report, 499 (59/33/2). New Delhi: GOI.
4. Rebello, J. (2010). Indian Cell Phone Penetration to Reach 97 Percent in 2014. Retrieved from <http://www.isuppli.com/Mobile-and-Wireless-Communications/News/Pages/India-Cell-Phone-Penetration-to-Reach-97-Percent-in-2014.aspx>.
5. Wade, R.H. (2004). Bridging the digital divide: New route to development or new form of dependency, New York: Oxford University Press.