

UTILISATION OF AGRICULTURAL APPLICATIONS IN MOBILE PHONES BY THE FARMERS

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ABSTRACT

The study was conducted in Deesa, Vadgam and Dantiwada talukas of Banaskantha district. Five villages from each taluka were selected randomly. For selection of the farmers from each village, twenty android mobile phone holder farmers were selected randomly, thus a sample of total 300 respondents was selected for the study. Mean score was calculated for each activity accessed through the mobile application. The mean and standard deviation were used to categorised different independent variables. The study revealed that most of the respondents used mobile applications for networking purpose to maintain contact with mean score 2.58, for getting information regarding various government schemes with mean score 2.30, weather forecasting with mean score 2.27, pest disease control with mean score 2.26 and to get market price information with mean score 2.23. Among the seven independent variables three variables like mass media exposure, economic motivation and innovative proneness were highly and significantly correlated with awareness of the farmers about agricultural applications. High cost of data, content not suitable for local situation and network problems were the major constraints faced by the respondents in utilising mobile application.

Keywords : agricultural application, utilisation, mobile phone, constraints

INTRODUCTION

Mobile phone is gaining ground as an important tool for availing information regarding agriculture as there are number of pages available on different digital forms as web pages, video, what's app etc. Now a day's most of the young rural farmers possess mobile phone. There is realization that ICTs should be integrated to be effectively used in agriculture development as facilitating tools to boost its impact to the lives of farmers (Chauhan et al., 2016; Pratik and Vinaya, 2021). Mobile phones as an ICT tool have shown evidence for easier access to markets and information resources (Chhachhar, 2014). Agriculture extension workers do not reach every farmer and every farmer cannot contact extension workers on regular basis. Hence, there is limited flow of information about the latest agri-technologies (Pratik and Vinaya, 2022). However, there are multiple channels available for the transfer of knowledge from the laboratory to farmers (Barbosa, et al. 2020). With the availability of multi-disciplinary information for integrated agricultural development and availability of technology-based multimedia information systems, opportunities are available for easy transfer of knowledge from the information generators to the information users. The

experts have realized that smart phone is the most suitable gadget for creating general awareness amongst the farmers, rural and urban people (Dharanipriya and Karthikeyan, 2019). The medium is extremely convenient for all-purpose communication and mainly at the time of crises and urgent situations. Hence, it was thought to know the awareness and utilisation of the mobile phone by the farmers in seeking agricultural information with following objectives.

OBJECTIVES

- (1) To study the profile of the respondents
- (2) To study the utilisation of agricultural applications available in mobile phone among the farmers of Banaskantha district

METHODOLOGY

The study was conducted in Banaskantha district. Deesa, Vadgam and Dantiwada taluka were selected randomly for the study. Five villages from each taluka were selected randomly. The smart mobile phone holder who had at least one agricultural application available in their device,

from the selected villages constitute the sampling frame. For selection of the final respondent from each village, twenty smart phone holder farmers were selected randomly, thus a sample of total 300 respondents was selected for the study.

An interview schedule was constructed in light of the objectives of the study. The data were collected through personal interview and collected data were processed and interpreted by applying various statistical tools such as mean, standard deviation, percentage, frequency and Pearson correlation coefficient. The data were analysed by Microsoft Office excel software 2021 version. The *ex post facto* research design was used for the study.

RESULTS AND DISCUSSION

Table 1: Distribution of respondents according to their age (n = 300)

Category	Frequency	Percentage
Young (Up to 35 years)	36	12.00
Middle age (36 to 50 years)	246	82.00
Old age (Above 50 years)	18	06.00

The data regarding the age of the respondents are presented in Table 1. From the table it can be observed that 82.00 percent of the respondents were middle aged *i.e.* 36 - 50 years of age, followed by young farmers (12.00%) and old farmers (6.00%). Young and middle aged farmers were using more agricultural application because young people are generally more proficient in using smart devices. The results are quite similar to the findings of Meena *et al.* (2022).

Table 2: Distribution of respondents according to their education (n = 300)

Category	Frequency	Percentage
Illiterate	21	07.00
Can read and write	08	02.67
Primary (1 st to 8 th standard)	19	06.33
Secondary (9 th to 10 th standard)	86	28.67
Higher secondary (11 th to 12 th standard)	124	41.33
Graduate	35	11.67
Postgraduate and above	07	02.33

In case of education 41.33 percent respondents had higher secondary level education, followed by 28.67 percent of respondent had secondary education. This shows a great chance of using mobile phones. Only 7.00 percent of the respondent were illiterate because the illiterate people can find it difficult to run the mobile applications.

Table 3 indicates the distribution of the respondents according to their farming experience.

Table 3: Distribution of respondents according to their farming experience (n = 300)

Category	Frequency	Percentage
Very low (Up to 5 years)	30	10.00
Low (6 to 10 years)	95	31.67
Medium (11 to 15 years)	78	26.00
High (16 to 20 years)	52	17.33
Very high (21 and above)	45	15.00

From the above table it can be observed that 31.67 percent of the respondents had low level of farming experience followed by 26 percent had medium level of experience. This might be due to large number of the respondents were from middle age group. Only 10 percent of the respondents had very low level of farming experience whereas almost one third (32.33%) of the respondent had high to very high level of farming experience *i.e.* above 16 years.

Table 4: Distribution of respondents according to their land holding (n = 300)

Category	Frequency	Percentage
Marginal (Up to 1.00 ha)	72	24.00
Small (1.01 to 2.00 ha)	147	49.00
Semi- Medium (2.01 to 4.00 ha)	34	11.33
Medium (4.01 to 10.00 ha)	32	10.67
Large (above 10.00 ha)	15	05.00

From the above table it can be observed that almost half of the respondents (49.00%) had small size of land holding, followed by marginal land holding with 24.00 percent and semi medium size land holding with 11.33 percent. The findings are at par with the findings of Anitha and Thippeswamy (2018).

Table 5: Distribution of respondents according to their mass media exposure (n = 300)

Category	Frequency	Percentage
Very Low (Below 6.88 score)	12	04.00
Low (6.88 to 7.12 score)	36	12.00
Medium (7.13 to 11.29 score)	142	47.33
High (11.30 to 13.37 score)	92	30.67
Very High (Above 13.37 score)	18	06.00
Mean = 9.21		SD = 2.08

From Table 5 it can be concluded that 47.33 percent of the respondent had medium level of mass media exposure followed by high (30.67%) and low (12.00%) level of mass media exposure. The mass media exposure has a direct relation with the use of mobile phones and other ICT tools.

The data in the table put light on the fact that the farmers had more inclination towards the mass media. This may be due to high use of social media which connects large number of people. The findings are similar to the findings of Tankodara *et al.* (2022).

Table 6: Distribution of respondents according to their economic motivation (n = 300)

Category	Frequency	Percentage
Very low (score below 9.48)	00	00.00
Low (9.48 to 13.90 score)	43	14.33
Medium (13.91 to 22.77 score)	155	51.67
High (22.78 to 27.21 score)	89	29.67
Very high (Score above 27.21)	13	04.33
Mean = 18.34		SD=4.43

From the above table it can be concluded that most of the respondent (51.67%) had medium level of economic motivation. Followed by high (29.67%) and low (14.33%) level of economic motivation. It is clear from the table that most of the farmers were engaged in farming to make profit from the business. They were not doing subsistence farming.

From Table 7 it can be observed that 40.67 percent of the respondent had medium level of innovative proneness, followed by low level (24.33%) and high level (19.00%) of innovative proneness. Overall from the above table it can be concluded that the farmers were slightly low innovative. Similar result has been found by Janarthanan *et al.* (2019).

Table 7: Distribution of respondents according to their innovative proneness (n = 300)

Category	Frequency	Percentage
Very low (score below 6.04)	42	14.00
Low (6.04 to 9.39 score)	73	24.33
Medium (9.40 to 16.12 score)	122	40.67
High (16.13 to 19.48 score)	57	19.00
Very high (Score above 19.48)	06	02.00
Mean = 12.76		SD =3.36

Utilisation of agricultural applications

The data in Table 8 shows the utilization of mobile application by the farmers. From the table it is clear that most of the respondents used mobile applications for maintaining cosmopolite contact with a mean score of 2.58. The second most important utilization of mobile application were collection of information regarding scheme with mean score 2.30. The next important utilization of mobile application was for weather forecasting and pest and disease control with mean score 2.27 and 2.26 respectively. The next two important use of mobile application were for marketing and price information and fertilizer application with 2.23 and 2.17 mean score. The reason behind this result may be due to farmers were connected through WhatsApp, Instagram, Facebook with outside agencies to make contact. They were also using some e governance platform by which they can get information about various Government schemes. Through Google and Accuweather the respondents got daily weather updates.

Table 8: Distribution of respondents according to utilization of mobile applications

(n = 300)

Sr. No.	Utilization of mobile application	High utilization	Moderate utilization	Low utilization	Mean score
1	Pest and disease control	142 (47.33)	95 (31.67)	63 (21.00)	2.26
2	Weed management	74 (24.67)	124 (41.33)	102 (34.00)	1.91
3	Fertilizers application	137 (45.67)	76 (25.33)	87 (29.00)	2.17
4	Government scheme	146 (48.67)	98 (32.67)	56 (18.67)	2.30
5	Weather forecasting	145 (48.33)	92 (30.67)	63 (21.00)	2.27
6	Marketing and price information	126 (42.00)	117 (39.00)	57 (19.00)	2.23
7	Irrigation	54 (18.00)	78 (26.00)	168 (56.00)	1.62
8	Soil information	71 (23.67)	81 (27.00)	148 (49.33)	1.74
9	Contact with agri. scientists/ KVK/ ATMA	198 (66.00)	78 (26.00)	24 (8.00)	2.58
10	Agricultural machinery	00 (0.00)	58 (19.33)	242 (80.67)	1.19

(Data in parenthesis indicates percentage)

Table 9: Correlation coefficient between awareness and independent variables (n = 300)

Sr. No.	Selected characteristic	Correlation coefficient (r)
X ₁	Age	0.185*
X ₂	Education	0.205*
X ₃	Farming experience	0.117 ^{NS}
X ₄	Land holding	0.119 ^{NS}
X ₅	Mass media exposure	0.437**
X ₆	Economic motivation	0.376**
X ₇	Innovative proneness	0.274**

**Significant at 1% level, * Significant at 5% level
^{NS}Non significant

The correlation coefficient between the independent variables and the dependent variable are presented in above table. From the table it can be clearly observed that all the independent variables are positively related with utilisation of agricultural applications by the respondents. Independent variables like mass media exposure, economic motivation and innovative proneness were highly and significantly correlated with utilisation of agricultural applications with correlation coefficient 0.437, 0.376 and 0.274 respectively. This finding is at par with the findings of Chaudhari *et al.* (2021), Mittal and Mehar (2015) and Khodifad and Solanki (2023). The other variables like education (r = 0.205) and age (r = 0.185) were significantly correlated with dependent variable. Farming experience and land holding had not any significant association with utilisation of agricultural applications by the respondents.

Constraints experienced by the respondents in using mobile application

The constraints experienced by the farmers are presented in the following table. It can be concluded from the following table that most important constraint experienced by the respondent was high cost of data which was experienced by all of the respondents. This finding is at par with the finding of Nikam *et al.* (2020). The next important constraints experienced by 67.67 percent respondent was about suitability of the content of the application in local situation. The third problem experienced by 64.67 percent of the respondent was about the network issue in village area. The other important constraints experienced by the respondents were language barrier of the applications, difficult to understand and use the features of the applications, less credible, not updated content and security issue which were ranked as fourth, fifth, sixth, seventh and eighth respectively.

Table 10: Constraints experienced by the respondents in using mobile application (n = 300)

Sr. no.	Constraints	Frequency (%)	Rank
1	Network problem	194 (64.67)	III
2	High cost of data	300 (100.00)	I
3	Difficult to understand and use features of mobile applications	163 (54.33)	V
4	Language barriers	178 (59.33)	IV
5	Content is not suitable in local situation	203 (67.67)	II
6	Content is not updated	123 (41.00)	VII
7	Security issue	72 (24.00)	VIII
8	Less credibility	124 (41.33)	VI

(Data in parenthesis indicates percentage)

CONCLUSION

From the study it can be concluded that most of the respondents were middle aged group followed by young age, had higher secondary level of education, low to medium level of farming experience and innovative proneness, had small size of land holding, medium to high level of mass media exposure and economic motivation.

Most of the respondents used mobile applications for networking purpose to maintain contact, for getting information regarding various government schemes, weather forecasting and pest disease controlling. Independent variables like mass media exposure, economic motivation and innovative proneness were highly and significantly correlated with utilisation of agricultural applications by the respondents.

The major constraints experienced by the farmers in utilization of agricultural application available in their mobile phones were high cost of data, content of the application is nit locally suitable, network problem in rural areas and language barriers.

IMPLICATIONS

The findings of the study will be helpful to the mobile application developers. They can develop appropriate and demand driven mobile applications which are mostly used by the farmers. The study will also helpful to planners and policy makers to plan and implement the policy regarding use of mobile applications and its security issue. Extension

workers can also use the appropriate mobile applications to reach out and advising their clients.

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CONFLICT OF INTEREST

The authors of the paper declare no conflict of interest.

REFERENCES

- Anitha, L. and Thippeswamy, G. (2018). Awareness and impact of agriculture apps on production and farmers' livelihood security. *International Journal of Management, Technology and Engineering*. 8(10): 2723-2733.
- Barbosa, J. Z., Prior, S. D., Pedreira, G. Q., Motta, A. C. V., Poggere, G. C. and Goularte, G. G. (2020). Global trends in apps for agriculture. *Multi-Science Journal*. 3(1): 16-20.
- Chaudhari, R., Patel, J. B., and Patel, P. C. (2021). Utilization of smartphone applications by farmers in agriculture. *Gujarat Journal of Extension Education*. 32(1): 38-42.
- Chauhan, N. B., Patel, J. B. and Vinaya Kumar, H. M. (2016). Innovative ICT Models for sustainable agricultural development. 'National Seminar SEEG-2016': Lead Paper, pp: 75-80.
- Chhachhar, A. R., Qureshi, B., Khushk, G. M. and Maher, Z. A. (2014). Use of mobile phone among farmers for agriculture information. *European Journal of Scientific Research*. 119(2): 265-271.
- Dharanipriya, A. and Karthikeyan, C. (2019). Use of smartphones by farmers as a tool for information support in agriculture. *Journal of Krishi Vigyan*. 7, 251-256.
- Janarathanan, R., Vijay, S. and Karthikeyan, C. (2019). A Study on the farmers' perception on the sugarcane expert system based mobile application. *Madras Agricultural Journal*. 106: 1-3.
- Khodifad, P. B. and Solanki, A. V. (2023). Utilization of information and communication technologies by the farmers. *Gujarat Journal of Extension Education*. 35(2): 122-126.
- Meena, M., Vishal, M. K. and Meena, R. D. (2022). Sources of information and use of mobile phones in major seed spices growing states. *Gujarat Journal of Extension Education*. 33(2): 43-50.
- Mittal, S. and Mehar, M. (2015). Socio-economic factors affecting adoption of modern information and communication technology by farmers in India: analysis using multivariate Probit model. *The Journal of Agricultural Education and Extension*. 22(2):199-212.
- Nikam, V., Kumar, S., Kingsly, I. M. and Roy, M. (2020). Farmers mobile pattern, information sources and perception about mobile app for grapes. *Indian Journal of Extension Education*. 56(1): 77-83.
- Pratik Kiritkumar Patel and Vinaya Kumar, H. M. (2021). Farmers socio- economic status and constraints using social media for sustainable agriculture development. *Guj. J. Ext. Edu*. 32 (1): 34-39.
- Pratik Kiritkumar Patel and Vinaya Kumar, H. M. (2022). Predictive Factors for Farmers' Knowledge of Social Media for Sustainable Agricultural Development. *Indian Journal of Extension Education*, 58 (4): 55-59. <http://doi.org/10.48165/IJEE.2022.58412>
- Tankodara, K. D., Chauhan, N. B. and Sharma, P. K. (2022). ICT operational self-confidence of the farmers. *Gujarat Journal of Extension Education*. 34(1): 53-56.

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