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Predictive Factors for Farmers' Knowledge of Social Media for Sustainable Agricultural Development

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ABSTRACT

India is rapidly becoming digitally empowered, transforming the paradigm from paper to digital. Agriculture is not an exception to the availability of information on social media for users, establishing a communication link between farmers, extension agents and agricultural institutions. The study was undertaken in 2021 in the Gandhinagar district of Gujarat State to assess farmers' knowledge about social media. According to the findings, 65.00 per cent of farmers had a high level of knowledge about social media usage. Education, occupation, annual income, innovativeness, scientific orientation, use of ICT tools, use of social media platforms and information-seeking behaviour were positively and significantly correlated. At the same time, age and farming experience were negatively and significantly related to their knowledge of social media. Thus, to harness the outcome of the current trend of the behaviour of the farmers, policymakers working in the field of farmer capacity building might use the research findings to determine the content and approach of ICT programmes. Also, the results can be considered to create more farmer-focused social media platforms.

INTRODUCTION

Agriculture makes the country secure in terms of food, fodder, and other raw materials as feedstock for industries (FAO, 2015). It also serves as the source of livelihood for most of the Indian population. Agriculture contributes a significant figure to the country's overall economic growth and determines the standard of life for 54.60 per cent of the population (Anonymous, 2018). So it is very important to maintain sustainability in terms of growth in the agriculture sector over the long run (Amanjit et al., 2022). The problem with the country's extension system is the lack of human resources in agriculture extension agencies. The National Sample Survey Organization (NSSO, 2014) reported that only 41 per cent of farmers have access to one or more sources of information, while the remaining 59 per cent were ignorant in transferring knowledge to them, which results in a considerable decline in field gaps. The farmers may not be able to contact the extension professional to solve their problems (FAO, 2017).

Nowadays, social media in agriculture is a new upcoming field for information sharing and communication. The most popular social media in the farming community is WhatsApp, followed by Facebook, YouTube, Twitter and LinkedIn (Balkrishna & Deshmukh, 2017). It makes economical to disseminate agricultural information to farmers with the help of social media networks. Most of the respondents believed social media could play an important role in bridging the gap between stakeholders in agricultural innovation systems (Saravanan et al., 2015). A huge majority (95.90%) of the extension professionals said that social media impacts majorly on communication in the agricultural sector (Suchiradipta & Saravanan, 2018). The acceptance of social media has increased; thus, various applications, tools, platforms, functions, and features have been evaluated (Sandeep et al., 2022)

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as such developing awareness and skill of the farmers to use ICT tools for their farming benefits is required (Panda et al., 2019). The potential of social media need to be exploited to bring location specific and commodity oriented transformative changes in the agriculture extension delivery system (Nain et al., 2019).

Access to agricultural information is essential for farmers to increase their capacity to sustain and increase farm productivity. When farmers lack access to trustworthy scientific sources of agricultural information, they frequently rely on their informal social networks (such as their family and friends) and engage in informal agricultural knowledge exchange. Social network theories claim that rather than one's own values and character traits, a person's relationships, networks, and interactions have a greater influence on their behaviour. Interpersonal connection is essential for supporting learning processes because it allows learners to actively construct information by putting concepts into words that are based on the reactions and responses of others. Social media use among the rural population has increased recently. Understanding the roles social media plays in farmer decision-making and agricultural innovation in a broader is crucial. Understanding the factors that affect the information source and social media usage is essential to changing their behaviour. With this backdrop, the study has been conceptualized to study the knowledge level about social media and its association with the characteristics of the farmers and the nature and intensity of the relationship is worked out.

METHODOLOGY

The study was undertaken in the Gandhinagar (230 56' to 230' 01' north latitude and east longitude 730 33' to 720 33') district of Gujarat State, with four talukas, viz., Dahegam, Gandhinagar, Kalol and Mansa. Three villages were selected randomly from each talukas, and from each village, ten farmers were selected purposively those farmers who are using mobile phones and social media applications. In this manner, 120 respondents were chosen for the study. In line with the objectives of the study, the ex-post-facto research design was applied. The employed research design is a systematic experimental inquiry in which the researcher does not directly control on independent variables (Kerlinger & Katz, 1976). A list of variables to be dealt with was prepared based on a literature review related to the subject. Further, experts and research committee members were consulted and finally, the variables that were found to be most relevant to the present study were selected. The selected independent variables were age, education, occupation, farming experience, family size, landholding, annual income, innovativeness, scientific orientation, use of ICT tools and social media platforms for information-seeking behaviour. The level of understanding of how to use social media was chosen as the study's dependent variable. Gujarati version interview schedule was developed for data collection. The farmers who use smartphones were interviewed personally at their homes/workplace from January 2021 to March 2021). Before conducting an interview, the aim and objectives of the study were explained to the respondents in order to get whole-hearted responses and correct information from them. The variables were measured with suitable scales. The data collected were classified, tabulated and analysed. Statistical methods, such as the frequency and percentage, the arbitrary method, and the correlation coefficient, were used. Multiple linear regression analysis was also used to study the effect of independent variables on dependent variables.

RESULTS AND DISCUSSION

Knowledge level on the use of social media

It can be revealed from Table 1 that 97.50 per cent of the farmer knew about social media as a platform for interacting with each other online, 61.67 per cent of them knew about the usage

Table 1. Distribution of the farmers according to their knowledge level on the use of social media

S.No.	Statements	Correct response (%)
1	Social media is a collection of internet-based communities that allow users to interact with each other online.	97.50
2	Social media is used for information, entertainment, online marketing, communication and the transfer of technology.	61.67
3	Among these (Facebook, YouTube, Whatsapp and Twitter), which are the social media sites?	85.82
4	Social Media sites allow the posting/sharing of media content.	81.67
5	Social Media sites can be used for purchasing agriculture inputs.	56.67
6	Social Media sites can be used for the marketing of farm produce.	60.00
7	Social media sites/platforms can be used for social networking, photo sharing, video sharing and video conferencing.	81.67
8	Products can be bought or sold on the Facebook marketplace.	56.67
9	Social media allows users to connect with other farmers' groups worldwide.	76.67
10	Different groups can be created on Whatsapp.	80.83
11	A broadcast list can be created on Whatsapp.	64.17
12	News can be read on Facebook.	85.00
13	A personalized/Independent channel can be created on Youtube.	72.50
14	Which websites provide video conferencing (Google meet, Zoom and Cisco Webex)?	45.00
15	With the help of social media sites, you can share photos of pests and diseases and ask for solutions.	93.33
16	Social media allows farmers to link to agriculture universities and government organizations directly.	91.67
17	With the help of social media sites, you can know the price and arrivals of the commodity in different markets.	59.17
18	With the help of YouTube, you can create a Live Stream.	40.00
19	Basic service on social media is free of cost.	89.17
20	Different social media accounts can be linked to each other.	55.83
21	Social media can be accessed without an internet connection.	97.50

of social media for several purposes and 85.82 per cent of them were aware of the mainstream social media platforms. With the advent of the accessibility of the internet in rural areas, farmers access social media in their day-to-day life for varied purposes. When the farmers were inquired about specific knowledge about the use of social media, it was observed that 81.67 per cent of the farmers knew that social media can be used for posting and sharing media content, social networking and video conferencing, 76.67 per cent of them knew the usage of social media for connecting with farmers worldwide. This indicates that social media platforms are a popular choice of the farmers for sharing content online and networking with fellow farmers.

It can be inferred from Table 1 that 93.33 per cent of the farmers knew about social media's use in sharing photos of pests and diseases and seeking advice, and 91.67 per cent of them knew that social media is a potent mechanism of connecting with agricultural universities and government organization directly, 60.00 per cent of them had knowledge about the use of social media for the marketing of farm produce, 59.17 per cent of them knew social media usage for knowing prevailing market prices and 56.67 per cent of them had knowledge about the use of social media for purchasing agriculture inputs as well as for buying and selling products on Facebook marketplace. The farmers generally knew about the use of social media to purchase agricultural inputs, seek farm-related advice and check market prices.

Some important functions of navigating through social media may aid the extension functionaries directing the farmers, like 97.50 per cent of the farmers knew that social media cannot be accessed without the internet and 89.17 per cent of them knew that basic services in social media are free of cost. Whatsapp's provision of group creation (80.83%) and broadcast list creation (64.17%) was known by the farmers. The ease of linking several social media accounts to each other was known by 55.83 per cent of farmers, 72.50 per cent of them had knowledge about creating a personal channel on YouTube, but only 40.00 per cent of them knew about the facility of Live streaming on YouTube. The farmers (85.00%) knew about the usage of Facebook for news, but only 45.00 per cent of them knew about videoconferencing. The farmers can be sensitised by the importance and use of videoconferencing as it can aid in real-time problem solving and networking.

Overall knowledge level on use of social media

The data regarding the knowledge level of farmers' use of social media is presented in Table 2. The data clearly shows that 65.00 per cent of farmers had a high knowledge level of social media, whereas 34.17 per cent of farmers had a medium knowledge level of the use of social media. According to the preceding data, most farmers had high social media knowledge. The high affordability of smartphones and the low cost of internet data subscriptions could cause high social media awareness. The findings were comparable with Pratik & Vinaya (2021), Pudke et al., (2018) & Shanmuka et al., (2022a & 2022b).

Table 2. Distribution of the farmers according to their overall knowledge level on use of social media

S.No.	Category	Per cent
1	Low (1 to 7 Score)	00.83
2	Medium (8 to 14 Score)	34.17
3	High (15 to 21 Score)	65.00

Relationship between knowledge of farmers about social media with their profile

It can be observed from Table 3 out of twelve independent variables, nine viz.; education (0.315), occupation (0.295), annual income (0.246), innovativeness (0.675), scientific orientation (0.543), use of ICT tools (0.531), use of social media platform (0.768), information-seeking behaviour (0.592) and landholding (0.183) were positively and significantly correlated. It can be inferred that educated farmers who know the use of social media were more likely to be knowledgeable about social media. Even the farmers who were innovative and had a scientific temper knew well about social media and its uses. At the same time, age (-0.573) and farming experience (-0.488) were negatively and significantly related to their knowledge of social media. It was seen that younger farmers had more knowledge about social media. Only one of the twenty variables, the family size (-0.132)—could not be significantly related to the participants' familiarity with social media.

Table 3. Relationship between knowledge of social media with a profile of farmers

S.No.	Independent Variables	('r' value for knowledge)
1	Age	-0.573**
2	Education	0.315**
3	Occupation	0.295**
4	Farming experience	-0.488**
5	Size of family	-0.132
6	Landholding	0.183*
7	Annual income	0.246**
8	Innovativeness	0.675**
9	Scientific orientation	0.543**
10	Use of ICT tools	0.531**
11	Use of social media platform	0.768**
12	Information-seeking behaviour	0.592**

**Significant at 0.01 level of probability; *Significant at 0.05 level of probability

Multiple linear regression analysis between knowledge of social media with profile of farmers

It could be observed from Table 4 that the independent variables with the knowledge of social media of the farmers taken on multiple linear regression analysis gave the R^2 (Coefficient of multiple determination) values of 0.702. It means that 70.20 per cent of the farmers' total variation in knowledge of social media is contributed by selected independent variables (predictors). The independent variables like the use of social media platforms were found to be positive and highly significant. The higher utilization of social media may lead to a higher knowledge about social media. Scientific orientation, use of ICT tools, social media platforms, and information-seeking behaviour were positive and significant. While occupation, size of family, and landholding were found to be positive and non-significant, age, education, farming experience, and annual income were found to be negative and non-significant.

Table 4. Multiple linear regression analysis between knowledge of social media with a profile of farmers

S.No.	Independent variables	Regression coefficient	Std. Error	't' Value
1	(Constant)	3.037	4.097	0.741
2	Age	-0.022	0.051	0.438
3	Education	-0.467	0.367	1.272
4	Occupation	0.424	0.492	0.863
5	Farming experience	-0.044	0.047	0.931
6	Size of family	0.602	0.528	1.140
7	Landholding	0.260	0.317	0.821
8	Annual income	-1.44E-06	00	1.158
9	Innovativeness	0.147	0.062	2.383*
10	Scientific orientation	0.299	0.124	2.401*
11	Use of ICT tools	0.465	0.210	2.209*
12	Use of social media platforms	0.720	0.177	4.059**
13	Information-seeking behaviour	0.154	0.059	2.610*

R^2= 0.702; Adjusted R^2 = 0.669; ** = 0.01 level of significance; * = 0.05 level of significance

The extension functionaries can focus on such factors to disseminate information through social media. For instance, farmers with higher information-seeking behaviour may be eager to know about social media and they may be prompt to accept it. In contrast, older farmers who aren't much educated can be dealt with using traditional methods.

Constraints encountered by the farmers in use of social media

It is evident from Table 5 that the farmers encounter many constraints regarding the effective use of social media. The major constraints included inadequate service, inadequate technical knowledge/skill, difficulty in finding relevant information, increased internet data requirements, unsuitable and incomprehensible information, inadequate response, irrelevant posts, fear of security of personal information on social media, language barrier to operating/use of mobile and lack of knowledge about gadgets functions and inadequacy of tools. In order to encourage farmers to utilize social media and bridge the knowledge gap, governments must address these pressing issues.

CONCLUSION

Most respondents had a high to medium level of knowledge about social media. The public extension system can use the study's findings which assist farmers in filling knowledge gaps. Furthermore, the characteristics like education, occupation, annual income, innovativeness, scientific orientation, use of ICT tools, social media platforms, and information-seeking behaviour were positively and significantly correlated to farmers' knowledge about social media. In order to take advantage of the effects of the current trend in farmer behaviour, policymakers should concentrate on those predictors while creating the content and strategy of their programmes. The findings of the study can also be used to develop farmer-friendly social media platforms.

Table 5. Constraints encountered by respondents for effective use of social media

S.No.	Constraints	Rank
1	Inadequate service (network coverage, speed)	I
2	Difficulty in finding relevant information (due to a large number of sources)	III
3	Inadequate technical knowledge/skill	II
4	Unsuitable and incomprehensible information	IV
5	Inadequate response	IV
6	Inadequacy of tools (smartphones, laptops)	VII
7	Lack of knowledge about gadgets functions	VI
8	Language barrier to operating/use of mobile	V
9	Irrelevant posts	IV
10	Increased internet data requirements	III
11	Fear of security of personal information on social media	IV
12	Time spending on social media increased	VIII

REFERENCES

Amanjit, K., Gurjeet, S. W., & Ramandeep, S. (2022). Leveraging social media platforms for valuing agri-entrepreneurship in Punjab, India. *Indian Journal of Extension Education, 58*(3), 70–73.

Anonymous. (2018). *Annual report 2017-18*. Department of Agriculture, Cooperation & Farmers Welfare, Government of India. (Retrieved from http://agricoop.nic.in/sites/default/files/Krishi%20AR%202017-18-1%20for%20web.pdf)

Balkrishna, B. B., & Deshmukh, A. A. (2017). A study on role of social media in agriculture marketing and its scope. *Global Journal of Management and Business Research, 17*(1), 33-36.

Dhola, A. B., & Pandya, R. D. (2019). Relationship with profile of mobile owners and their knowledge. *Gujrat Journal of Extension Education, 30*(1), 44-47.

FAO. (2015). *Climate change and food security: risks and responses*. Rome. (Retrieved from https://www.fao.org/3/i5188e/I5188E.pdf)

FAO. (2017). *The future of food and agriculture – Trends and challenges*. Rome. (Retrieved from https://www.fao.org/3/i6583e/i6583e.pdf)

Harilal, R. (2014). Relational analysis of utilization of ICT tools, farming performance and profile characteristics of commercial poultry farmers. *Global Journal for Research Analysis, 7*(3), 92-93.

Kerlinger, F. N., & Katz, L. (1976). *Foundation of behavioural research*. Surjeet Publication. New Delhi, pp 198-204.

Nain, M. S., Singh, R., & Mishra, J. R. (2019). Social networking of innovative farmers through WhatsApp messenger for learning exchange: A study of content sharing. *Indian Journal of Agricultural Sciences, 89*(3), 556-558.

NSSO (National Sample Survey Organisation). (2014). *Situation Assessment Survey of Agricultural Households, All India Debt and Investment & Land and Livestock Holdings in India, Key*

Indicators of Situation Assessment of Agricultural Households. NSS 70th Round. (Retrieved from http://mospi.nic.in/sites/default/files/national_data_bank/ndb-rpts-70.htm)

Pal, A. (2018). *Perception of farmers towards use of social media for seeking agricultural information: a study in Udham Singh Nagar district of Uttarakhand.* (Master's dissertation, G. B. Pant University of Agriculture and Technology, Pantnagar, Uttarakhand).

Panda, S., Modak, S., Devi, Y. L., Das, L., Pal, P. K., & Nain, M. S . (2019). Access and usage of Information and Communication Technology (ICT) to accelerate farmers' income. *Journal of Community Mobilization and Sustainable Development, 14*(1), 200-205.

Pratik, K. P., & Vinaya, K. H. M. (2021). Farmers' socio-economic status and constraints using social media for sustainable agriculture development. *Gujarat Journal of Extension Education*, *32*(2), 34-39.

Pudke S. S., Suradkar, D. D., Ghadge, P. A., & Anarase, M. S. (2018). Attitude of farmers towards use of mobile phone services in transfer of agricultural technology. *International Journal of Current Microbiology and Applied Sciences*, *7*(9), 68-74.

Sandeep, G. P., Prashanth, P., Sreenivasulu, M., & Madavilata, A. (2022). Effectiveness of Agricultural Information Disseminated through Social Media. *Indian Journal of Extension Education*, *58*(2), 186-190.

Saravanan, R., Suchiradipta, B., Chowdhury, A., Hall, K., & Odame, H. H. (2016). *Social media for rural advisory services. Note 15. GFRAS Good Practice Notes for Extension and Advisory Services.* GFRAS: Lindau, Switzerland. (Retrieved from https://www.g-fras.org/en/good-practice-notes/social-media-new-generation-tools-for-agricultural-extension.html?showall=&start=5)

Sethy, S., & Mukhopadhyay, S. D. (2020). Use of ICTs by Farmers: A Study in Odisha. *Asian Journal of Agricultural Extension, Economics & Sociology*, *38*(5), 74-86.

Shanmuka, A., Lenin, V., Sangeetha, V., Muralikrishnan, L., Ramasubramanian, V., & Arora, A. (2022a). Factors affecting perception of extension agents towards effective social media utilization behaviour. *Indian Journal of Extension Education*, *58*(3), 88–92.

Shanmuka, A., Lenin, V., Sangeetha, V., Muralikrishnan, L., Ramasubramanian, V., & Arora, A. (2022b). Analysis of factors affecting social media utilization of extension agents. *Indian Journal of Extension Education*, *58*(2), 110–114.

Suchiradipta, B., & Saravanan, R. (2018). The online culture of agriculture: exploring social media readiness of agricultural professionals. *CSI Transactions on ICT*, *6*(3), 289-299.

Tupsoundare, R. G. (2020). *Knowledge and utilization behaviour of farmers regarding smart phone.* (Master's dissertation, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani).