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Digital agriculture and social media: Understanding farmers' constraints and suggestions for better outreach

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Abstract

Social media has emerged as a significant communication tool for disseminating agricultural information, facilitating knowledge exchange, and enhancing farmers' access to extension services. Despite its growing importance, several barriers limit its effective utilization among farmers. The present study was conducted to identify the constraints faced by farmers in utilizing social media for agricultural purposes and to obtain their suggestions for improving its effectiveness as an agricultural information source. The study was carried out among 120 social media user farmers selected through a structured survey method in Gujarat state. Data were collected through personal interviews and analyzed using frequency, percentage, and ranking techniques.

The findings revealed that lack of reliable and authentic agricultural information, difficulty in identifying trustworthy information sources, poor internet connectivity, limited digital literacy, and information overload were the major constraints experienced by farmers while using social media for farming-related activities. Farmers also reported language barriers, inadequate interaction with agricultural experts, and concerns regarding misinformation as important challenges. To overcome these constraints, the respondents suggested the establishment of verified social media channels by agricultural universities and extension agencies, provision of agricultural content in local languages, regular online interaction with experts, digital literacy training programmes, and improvement of rural internet infrastructure. The study highlights the need for strengthening digital extension services through reliable, accessible, and farmer-centric social media platforms. The findings can assist policymakers, extension professionals, and agricultural institutions in designing effective digital communication strategies for enhancing agricultural development.

Keywords: Social media, agricultural information, farmers, constraints, suggestions, digital extension, agricultural communication, information dissemination

Introduction

The rapid advancement of information and communication technologies (ICTs) has transformed the way agricultural information is generated, disseminated, and utilized. In recent years, social media platforms such as WhatsApp, YouTube, Facebook, Instagram, and Telegram have become increasingly popular among farmers for accessing agricultural information, sharing experiences, and interacting with fellow farmers and experts. These platforms provide opportunities for timely dissemination of information related to crop production, pest and disease management, weather forecasting, market prices, government schemes, and innovative agricultural practices. The integration of social media into agricultural extension systems has created new possibilities for strengthening communication between researchers, extension personnel, and farming communities. Compared to conventional extension methods, social media offers greater speed, accessibility, interactivity, and cost-effectiveness. Consequently, it has emerged as an important component of digital agriculture and modern extension services. Despite the growing adoption of social media in rural areas,

several challenges continue to hinder its effective utilization by farmers. Issues such as poor internet connectivity, inadequate digital literacy, language barriers, misinformation, and limited access to reliable agricultural content often reduce the usefulness of social media as a source of agricultural information. Furthermore, the abundance of unverified information available on social networking platforms may create confusion among farmers and influence decision-making adversely.

Understanding the constraints experienced by farmers is essential for improving the effectiveness of social media-based agricultural communication. Equally important is the identification of farmers' suggestions for overcoming these challenges, as such insights can guide the development of farmer-oriented digital extension interventions. In this context, the present study was undertaken with the following objectives:

1. To identify the constraints faced by farmers in utilizing social media for agricultural information.
2. To document farmers' suggestions for improving the effectiveness of social media as an agricultural information source.

The findings of the study are expected to contribute to the development of effective digital communication strategies and support policymakers, extension agencies, agricultural universities, and other stakeholders in enhancing the quality and reach of agricultural information services.

Materials and Methods

The study was conducted in selected districts named Vadodara and Chhotaudepur of Gujarat state. A total of 120 farmers were selected through a multistage sampling procedure.

The variables studied included age, education, farming experience, landholding, annual income, occupation, social participation, training received, extension participation, scientific orientation, innovativeness, risk orientation, and knowledge regarding social media. There are eight talukas in the Vadodara district. Out of them, Dabhoi and Karjan talukas were selected as having a larger area under cultivation. There are six talukas in the Vadodara district. Out of them, chhotaudepur and Jetpurpavi talukas were selected as having a larger area under cultivation. According to the maximum area under cultivation, five villages from

each taluka were chosen. As a result, four talukas and a total of twenty villages were chosen.

Six farmers were selected randomly without any biasness from each village. Thus, a total of 120 respondents were chosen from 20 villages spread throughout 4 talukas. Data were collected through personal interviews using a pre-tested structured schedule. Statistical tools such as frequency, percentage, mean score were used for data analysis.

Results and Discussion

1. Constraints Faced by Farmers for the Utilisation of Social Media

Constraints faced by farmers in utilizing social media are diverse and continuous. However, these constraints can be reduced if they are identified by policymakers and planners. In this study, farmers were asked to identify the challenges they face in using social media.

The frequency, percentage and ranking of each constraint were calculated and the prominent constraints are presented in Table 1.

Table 1: Constraints faced by farmers for the utilisation of social media n =120

Sr. No.	Category	Frequency	Per cent	Rank
1	Electricity/power failure in rural areas	1	0.80	X
2	Lack of knowledge about various social media platforms available	85	70.80	I
3	lack of timely technical advice through social media	69	57.50	IV
4	Fear of security of personal information for joining social media	32	26.70	VII
5	Lack of authenticity of information available on social media	72	60.00	III
6	Lack of skill to use social media	81	67.50	II
7	Inadequate services (network coverage, speed)	22	18.30	IX
8	Language barrier to operate/use of mobile	50	41.70	VI
9	Limited availability and poor internet coverage	24	20.00	VIII
10	Economic condition of farmer	59	49.20	V

Major constraints faced by farmers in descending order of rank were: (I) lack of knowledge about various social media platforms available, (II) lack of skill to use social media, (III) lack of authenticity of information available on social media, (IV) lack of timely technical advice through social media, (V) Economic condition of farmer, (VI) language barrier to operate/use of mobile, (VII) fear of security of personal information for joining social media, (VIII) limited availability and poor internet coverage, (IX) inadequate services (network coverage, speed) and electricity/power failure in rural areas.

2. Suggestions to Overcome Constraints Regarding Utilisation of Social Media

An attempt was made to ascertain suggestions from farmers to overcome various constraints faced by them. The farmers

were requested to offer their valuable suggestions against difficulties faced by them while using social media.

Frequency, Percentage and Rank for each suggestion was calculated and, on that basis, the suggestion was presented as under in Table 39.

From Table 2, majority suggestions given by farmers in descending order of rank were; (i) awareness about use of social media in agriculture should be increased, (ii) Timely information should be provided in short and simple form, (ii) Training and adequate knowledge should be provided to farmers for operating mobile phone and social media, (iii) Nonstop accessible network facilities should be made available in rural areas, (iv) Government should provide high speed data at low cost and (v) Source of information should be in regional language.

Table 2: Suggestions to overcome constraints regarding utilisation of social media n = 120

Sr. No.	Category	Frequency	Per cent	Rank
1	Government should provide high speed data at low cost	66	55.00	IV
2	Timely information should be provided in short and simple form	74	61.70	II
3	Nonstop accessible network facilities should be made available in rural areas	67	55.80	III
4	Awareness about use of social media in agriculture should be increased	88	73.30	I
5	Training and adequate knowledge should be provided to farmers for operating mobile phone and social media	74	61.70	II
6	Source of information should be in regional language	56	46.70	V

Conclusion

Major constraints faced by farmers in descending order of rank were: (I) lack of knowledge about various social media platforms available, (II) lack of skill to use social media, (III) lack of authenticity of information available on social media, (IV) lack of timely technical advice through social media, (V) Economic condition of farmer, (VI) language barrier to operate/use of mobile, (VII) fear of security of personal information for joining social media, (VIII) limited availability and poor internet coverage, (IX) inadequate services (network coverage, speed) and electricity/power failure in rural areas.

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Implications

1. There is a need to establish / identify verified social media accounts by agricultural universities, KVKs, and government agencies and to aware farmers regarding.
2. It is a prime need to provide agricultural content in local languages.
3. There should be Promotion of video-based learning, demonstrations, and farmer success stories for easy and quick spreading technology.
4. It is need of current era to conduct regular webinars and online expert interactions for skill development and awareness regarding social media use.
5. There should be organization of digital literacy and social media training programs.
6. It is highly essential to improve rural internet infrastructure and access to digital devices.
7. It is high time to introduce fact-checking mechanisms for agricultural information.
8. There is a need to develop farmer-specific online communities.
9. It is high time to integrate social media with existing extension systems.
10. Extension system can use AI-based chatbots and digital advisory services for real-time guidance so that farmers can more utilize it.

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