

Original Research Article

Usage of mobile phone technologies of Agricultural extension services utilized by farmers

Abstract:

This study investigates the different types of agricultural informations obtained by the farmers through mobile phone technologies of agricultural extension services in Villupuram district, Tamil Nadu. The research examines the penetration of mobile phones, farmers' familiarity with various agricultural apps and services, and the impact of these technologies on farming practices. Through surveys and interviews with 150 farmers, the study reveals the awareness level of the farmers in using mobile phones for agriculture. The results indicate regarding the Government schemes related to agriculture more number of farmers (13 per cent) using mobile phones, this highlighting the potential for mobile technologies to enhance agricultural productivity and knowledge dissemination in the region. This research contributes to understanding the role of digital technologies in modernizing agricultural extension services in rural India.

Introduction

One of the primary forms of communication technology in both developed and developing nations is the mobile phone. Mobile phones have become more significant than landline phones. In the 20th century, these technologies have grown in North America and Europe. In recent years, the sector has grown quite quickly. One billion mobile phones were sold globally in twenty years, compared to four years for the second billion and two years for the third. In developing nations, there has been a rise in the coverage and subscription of mobile phones. An estimated 50% of people on the planet are thought to own a mobile phone. Nonetheless, it was found that 80% of people reside in areas covered by mobile phone networks [1]. Information and communication technology (ICT) have made it possible to share and improve knowledge and information among members of various communities by offering new concepts, approaches, and strategies. Without a doubt, rural people have enhanced their agriculture and products by adopting communication technology. The evolution of agriculture has changed significantly as a result of the usage of ICTs, such as mobile phones [2,3,4]. Farmers now have fresh perspectives and methods for deciding how to obtain market and weather information from relevant parties thanks to mobile phones. **The Indian government's M-Kisan portal offers a method to obtain mobile applications related to animal husbandry, horticulture, and agriculture [5].** Farmers may now stay informed about the market and weather while also interacting with customers to sell their goods at a fair price [6,7]. Value chains get more transparent and efficient when connections between producers, suppliers, and purchasers get stronger and are less susceptible to manipulation by middlemen. Additionally, improved accounting and traceability aid in forecasting and efficiency gains while lowering fraud and administrative load [8]. This paper mainly discusses, for what purpose farmers are using mobile phone technologies for agriculture.

Keywords: agricultural information, extension services ,farmers,mobile phone technology ,rural India

Materials and methods

The Tamilnadu district of Villupuram was chosen at random for this investigation. Five blocks—Kanai, vikkiravandi, ginge, Kandamangalam, and Koliyanur from the Villupuram district of Tamilnadu were chosen at randomly for the study. For this study, a sample size of 150 farmer respondents was used. A well-organised and tried-and-true questionnaire interview schedule was used to gather the data.

The data collected by the interview method was more reliable. Descriptive statistics were used to examine the collected data using SPSS software (25).

Objective of the study

To study the different types of agricultural information's obtained by the farmers through mobile phones

Result and discussion

The table 1 and diagram 1 together presents the same distribution of different agricultural information sought by farmers through mobile phone technology. The results indicate that farmers utilize mobile phones to access a wide range of agricultural information, with varying degrees of frequency.

Government schemes emerged as the most frequently accessed information, with 13% of farmers seeking this data. This is closely followed by news reports (12%), and marketing conditions and prices, electricity timing, and animal husbandry information (11% each). Seed and sowing information and fertilizer information were each sought by 10% of the farmers.

Harvesting and storage information was accessed by 9% of farmers, while pesticide and weedicide information was sought by 8%. In contrast to that, in the study of [9], disease treatment information is a major information know by farmers through mobile phones.

Less frequently accessed information included machinery and farm labour (4%) and use of input and output (1%).

These findings align with the study by [10], who found that access to market information and government schemes were among the top reasons for farmers to use mobile phone technology. The results also support the observations of [11], who noted that mobile phones play a crucial role in disseminating diverse agricultural information to farmers.

The varied information-seeking behaviour observed in this study underscores the potential of mobile phone technology as a comprehensive tool for agricultural extension services. It suggests that farmers are leveraging this technology to address multiple aspects of their agricultural activities, from production practices to market intelligence and policy awareness.

This data can inform policymakers and agricultural extension services about the types of information most sought after by farmers, allowing for more targeted and effective information dissemination strategies through mobile phone technology.

Nowadays, Government creates awareness to the farmers about government schemes through SMS, newspaper ad, whats app, facebook, twitter, etc. Every Government department regarding to agriculture and allied sectors they handling own department profile in social medias like whats app, facebook, twitter, you tube, Instagram, etc. It should be a very great initiative in the growing technological world.

Table 1 shows the frequency and per cent of farmers attained different types of agricultural informations

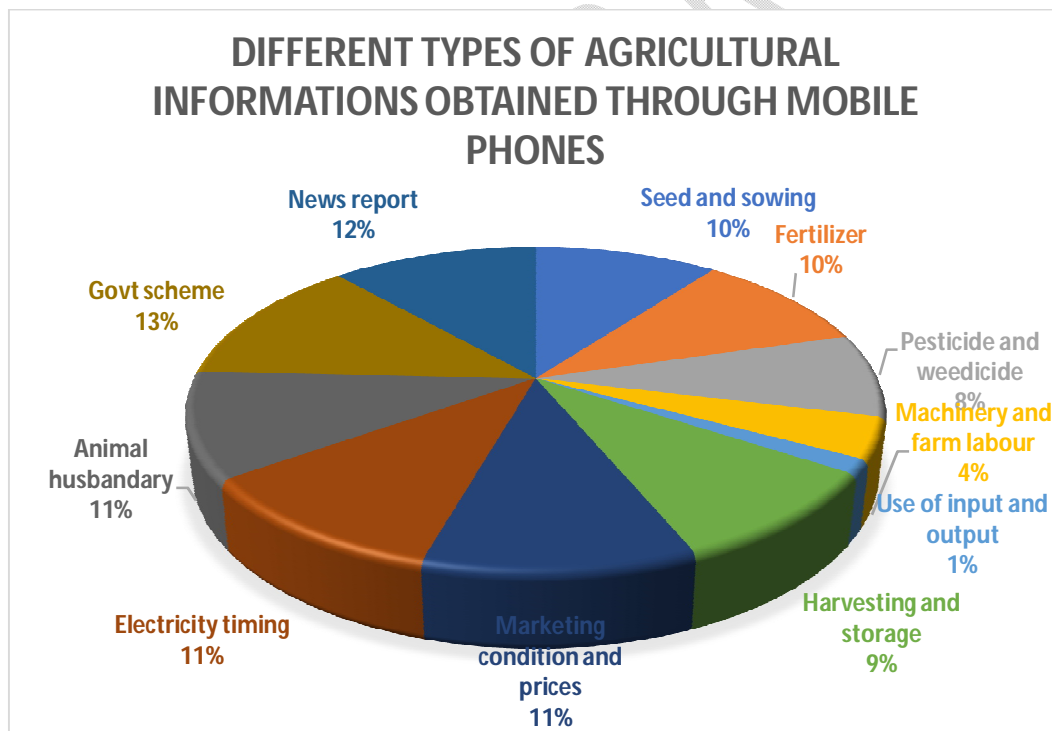
(n=150)

(Multiple answers allowed)

S.NO	Different Agricultural information's	Frequency	Percentage
01	Seed and sowing	103	10.0%

02	Fertilizer	103	10.0%
03	Pesticide and weedicide	84	8.0%
04	Machinery and farm labour	41	4.0%
05	Use of input and output	14	1%
06	Harvesting and storage	95	9%
07	Marketing condition and prices	108	11%
08	Electricity timing	108	11%
09	Animal husbandry	106	11%
10	Govt. scheme	129	13%
11	News reports	116	12%
	Total		100%

Diagram 1. Shows the same info percentage of agricultural informations obtained by the farmers which is tabulated as table 1



Conclusion:

This study highlights the significant role of mobile phone technologies in disseminating agricultural information to farmers in the Villupuram district of Tamil Nadu. The findings reveal that farmers are actively using mobile phones to access a diverse range of

agricultural information, with government schemes, news reports, and market-related information being the most frequently sought-after content.

The high utilization of mobile phones for accessing government schemes (13%) and news reports (12%) indicates farmers' growing interest in staying informed about agricultural policies and current events. The equal emphasis on market conditions, electricity timing, and animal husbandry information (11% each) demonstrates the multifaceted nature of farmers' information needs.

The study also reveals areas where mobile phone usage is less prevalent, such as information on machinery, farm labour, and input-output usage. This insight can guide agricultural extension services and policymakers in developing more targeted and comprehensive mobile-based information dissemination strategies.

The government's initiative to use various social media platforms and mobile applications for agricultural information dissemination is a positive step towards embracing technology in agriculture. This approach aligns well with the farmers' increasing reliance on mobile technologies for agricultural information.

In conclusion, this research underscores the potential of mobile phone technologies as a powerful tool for agricultural extension services. It suggests that by leveraging these technologies, there is significant opportunity to enhance agricultural productivity, improve farmers' decision-making processes, and ultimately contribute to the modernization of agriculture in rural India. Future research could focus on evaluating the impact of this information access on farming practices and outcomes, as well as exploring ways to increase adoption of mobile technologies among farmers who are currently underutilizing these resources.

Disclaimer (Artificial intelligence)

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

References

1. GSM. (2006). Universal access. How mobile can bring communication to all. <http://www.gsmworld.com/universalaccess/index.shtml>
2. Arokoyo, T. (2005). ICTs application in agricultural extension service delivery. In S.F.Adedoyin (Ed.), *Agricultural extension in Nigeria* (pp. 32–40). Ilorin, Nigeria: Agricultural Extension Society of Nigeria.
3. Gregg, J. A., & Irani, T. A. (2004). Use of information technology by county extension agents of the Florida Cooperative Extension Service. *Journal of Extension*, 42 (3).
4. Warren, M. F. (2002). Adoption of ICT in agricultural management in the United Kingdom: The intra-rural digital divide. *Agricultural Economics*, 48(1) 1–8.
5. Kumar, S. A., & Karthikeyan, C. (2019). Status of Mobile Agricultural Apps in the Global Mobile Ecosystem. *International Journal of Education and Development using Information and Communication Technology*, 15(3), 63-74.
6. Bayes, A., von Braun, J. and Akhter, R., (1999). Village Pay Phones and Poverty Reduction: Insights from a Grameen Bank initiative in Bangladesh. ZEF discussion Papers on Development Policy No. 8 Centre for Development Research, Bonn.

7. Goodman, J., (2005). Linking Mobile Phone Ownership and Use to Social Capital in Rural South Africa and Tanzania, Vodafone Policy Paper Series, Number 2.
8. Mandi, K., & Patnaik, N. M. (2019). Mobile apps in agriculture and allied sector: An extended arm for farmers. *Agriculture Update*, 14(4), 334-342.
9. Kumar, R. (2023). Farmers' use of the mobile phone for accessing agricultural information in Haryana: An analytical study. *Open Information Science*, 7(1), 20220145.
10. Akinwale, J. A., Owoade, E. O., & Olorunmbi, D. O. (2019). Analysis of utilization of mobile phones in agricultural information dissemination among maize farmers in Ondo state, Nigeria. *Journal of Agriculture and Environment*, 15(2), 39-49.
11. Hamad, M. A., Eltahir, M. E. S., Ali, A. E. M., & Hamdan, A. M. (2018). Efficiency of using smart-mobile phones in accessing agricultural information by smallholder farmers in North Kordofan–Sudan. Available at SSRN 3240758.

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