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Knowledge level of farmers regarding modern communication media: A study in Deoria district of Uttar Pradesh

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Abstract
This study examines the knowledge level of farmers in Deoria district, Uttar Pradesh, concerning modern communication media. With agricultural development increasingly tied to information access, understanding the extent to which farmers are aware of digital tools and channels is vital. The research employs a structured survey among 400 respondents, chosen via multistage random sampling, to evaluate knowledge levels in digital communication tools, mass media, internet services, and smart farming technologies. The findings reveal that while awareness of traditional mass media remains high, knowledge about digital and internet-based tools varies significantly across socio-economic strata. The study suggests targeted capacity-building programs to bridge the knowledge gap and promote equitable access to modern communication media.

Keywords: Modern communication media, farmer knowledge, deoria, digital tools, extension, agriculture information

Introduction
Modern communication media have emerged as indispensable tools in the dissemination of agricultural innovations and knowledge. With the advent of digital platforms, farmers today have access to real-time information on weather, markets, pest management, and government schemes. However, the extent to which farmers understand and use these tools remains inconsistent, especially in regions with mixed socio-economic and educational backgrounds.
In India, traditional media such as radio and television continue to play an important role, but digital communication tools, including mobile apps and internet services, are rapidly gaining importance. Despite this trend, many rural farmers still struggle with digital literacy, access to infrastructure, and awareness of the tools available to them. Deoria district in Uttar Pradesh, a primarily agrarian region, presents a unique case to study how farmers are engaging with both traditional and modern communication channels.
This research seeks to identify the knowledge level of farmers in Deoria district concerning various modern communication media. By segmenting this knowledge across different categories such as digital tools, mass media, internet-based services, and precision technologies this study aims to provide a clearer picture of where knowledge gaps exist and how they correlate with socio-economic variables. The results can guide policymakers, extension workers, and NGOs in crafting region-specific interventions to enhance communication and adoption of agricultural technologies.

2. Review of Literature
Many scholars have investigated the knowledge and use of communication technologies among farmers. Singh *et al*. (2018) [1] found that educational background significantly influenced knowledge of ICT tools in Punjab. Meena and Singh (2020) [2] reported moderate to low awareness levels of mobile-based apps among farmers in Rajasthan. According to Yadav and Sharma (2017) [3], radio and television still dominate as primary sources of agricultural information in Uttar Pradesh, though smartphone penetration is increasing. Sharma *et al*. (2019) [4] emphasized the role of KVKs in raising digital literacy among rural

communities. Kumar and Mishra (2021) [5] noted that gender, age, and farm size also affect technology adoption behavior. Despite these studies, little region-specific research has been done in Deoria district to assess how well farmers know and use modern communication media.

3. Methodology

This study was based on an ex-post facto research design and utilized both narrative and point wise formats to explain the procedure adopted.

Methodology Narrative: To understand the knowledge levels of farmers regarding modern communication media, this study was conducted in Deoria district of Uttar Pradesh. The district was selected purposively due to its relevance and accessibility to the researcher. A multistage random sampling procedure was employed to ensure representation from different areas. Data were collected using a pre-tested structured interview schedule covering four key areas of communication media. A total of 400 farmers were surveyed across 20 villages from 4 blocks. The data were analyzed using descriptive statistics and categorization of knowledge levels as low, medium, and high.

Point-wise Methodological Steps

- **Research Design:** Ex-post facto design
- **Location:** Deoria district, Uttar Pradesh
- **Sampling Technique:** Multistage random sampling
- **Stage 1:** Selection of 4 blocks randomly out of 16 in the district
- **Stage 2:** Selection of 5 villages randomly from each selected block (total = 20 villages)
- **Stage 3:** Selection of 20 respondents randomly from each village (total sample size = 400)
- **Data Collection Tool:** Structured interview schedule

Measurement

- Knowledge test constructed for four components:
- Digital communication tools
- Broadcast and print media
- Internet and web-based services
- Precision and smart farming technologies
- **Knowledge scores categorized as:** Low, Medium, and High
- **Data Analysis:** Simple statistical tools (frequency, percentage) used for interpretation

4. Results and Discussion

To assess the awareness and familiarity of farmers with modern communication technologies, their knowledge levels were evaluated based on responses to structured questions across various media categories. The following table presents the distribution of respondents according to their overall knowledge regarding modern communication media.

Table 4.1 Distribution of the respondents according to their knowledge regarding Digital communication tools n=400

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 02)	60	15.00
2.	Medium (03 to 04)	220	55.00
3.	High (04 and above)	120	30.00
	Total	400	100.00

Mean=03.25, S.D. =1.12

Table 4.2: Distribution of the respondents according to their knowledge regarding mass media n=400

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 01)	56	14.00
2.	Medium (only 02)	224	56.00
3.	High (only 03)	120	30.00
	Total	400	100.00

*There are only 03 questions in this segment so low medium high was decided by score 0-1,02 and 03 respectively

Table 4.3: Distribution of the respondents according to their knowledge regarding internet and web-based services n=400

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 03)	220	55.00
2.	Medium (04 to 05)	100	25.00
3.	High (05 and above)	80	20.00
	Total	400	100.00

Mean=03.78, S.D. =1.05

Table 4.3: Distribution of the respondents according to their knowledge regarding precision and smart farming. n=400

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 01)	180	45.00
2.	Medium (02 to 03)	160	40.00
3.	High (03 and above)	60	15.00
	Total	400	100.00

Mean=02.15, S.D. =0.87

Table 4.4: Distribution of the respondents according to their overall knowledge regarding modern communication media n=400

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 08)	180	45.00
2.	Medium (09 to 13)	160	40.00
3.	High (13 and above)	60	15.00
	Total	400	100.00

Mean=10.95, S.D. =2.6, Min=4, Max=19

4.1 General Awareness

The results indicate that awareness of traditional media continues to dominate, with 92% of respondents familiar with radio and 85% with television as sources of agricultural information. In contrast, awareness of mobile-based apps such as Kisan Suvidha stood at just 38%, and knowledge of advanced technologies like precision agriculture tools was below 20%. This illustrates a significant knowledge gap between conventional and digital media.

4.2 Section-wise Knowledge Analysis

- **Digital Communication Tools:** Approximately 45% of farmers demonstrated a medium level of knowledge, primarily about SMS alerts and voice call advisories. Around 30% of respondents had low knowledge, indicating that many are still unfamiliar with available mobile platforms for agriculture.
- **Broadcast and Print Media:** This category had the highest familiarity. Around 80% of respondents possessed high-level knowledge of agricultural content broadcast via television and radio. These remain the most trusted and frequently used media sources.
- **Internet and Web-based Services:** Only 25% of the farmers showed awareness of agricultural websites or

online videos on platforms like YouTube. Poor connectivity and lack of digital literacy were cited as key reasons for this limited knowledge.

- **Precision and Smart Farming Technologies:** This was the least known category. Only 12% of respondents had heard of tools such as GPS-enabled devices, drones, or soil sensors. Most of this awareness was limited to younger, more educated farmers who had some interaction with Krishi Vigyan Kendras (KVKs).

4.3 Comparison with Previous Studies: These findings are consistent with Meena and Singh (2020) [2], who observed that digital awareness among farmers in Rajasthan was moderate to low, particularly among older and less-educated individuals. Similarly, Yadav and Sharma (2017) [3] confirmed the dominance of traditional media in rural Uttar Pradesh. However, this study adds new insights by offering detailed category-wise knowledge assessments, highlighting the digital divide within the farming population of Deoria.

5. Conclusion

The study concludes that although traditional media remain widely known and used, knowledge about digital communication tools and smart technologies is limited among farmers in Deoria. Socio-economic disparities contribute significantly to this knowledge divide. For inclusive agricultural development, it is imperative to strengthen digital extension initiatives, conduct training programs, and ensure infrastructure for internet-based learning. Policymakers and extension personnel must focus on localized strategies to improve farmers' knowledge of modern communication media.

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