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Identification of agricultural areas wherein ICT is used in Satna District of Madhya Pradesh

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Abstract

Information and Communication Technology (ICT) has emerged as a powerful tool for transforming agricultural practices, especially in developing regions. The present study was conducted in Satna district of Madhya Pradesh to identify the major agricultural areas where ICT is being utilized by farmers. A total of 320 respondents were selected from four blocks; Majhgawan, Rampur Baghelan, Nagod, and Sohawal—using a combination of purposive and random sampling techniques. Data were collected through personal interviews using a structured schedule and analyzed using appropriate statistical methods.

The findings reveal that ICT usage is highest in disease management and water management (90% each), followed by fertilizer management (85%) and agricultural information access (82.5%). Moderate usage was observed in crop variety information (77.5%), tillage (75%), weed management (72.5%), and crop marketing (72.5%). However, relatively low adoption was found in weather information (57.5%), insect management (60%), agricultural advisory services (62.5%), and particularly in agricultural equipment information (35%). The study highlights that ICT plays a significant role in improving farm decision-making, productivity, and market access, although certain areas still require attention for wider adoption.

Keywords: ICT, agriculture, farmers, Satna district, Madhya Pradesh, disease management

Introduction

Three key technologies make Information, Communication and Technology (ICT). They are computer technology, communication technology, & information management technology. The data, knowledge, & information are managed, processed, and transferred using these technologies.

Two characteristics of early in agriculture ICTs use can be distinguished.

ICTs use in Communication

Through the straightforward proliferation of early ICTs, telegraphs and telephones were initially extended to farms. They provided useful means by which the far-flung farmers could promptly, if needed, get in touch with one other and the nearest towns.

Unpaid the complication of telegraphy and the unreliability of early telephones, the majority of correspondences were still conducted using conventional methods like the postal service. Farmers had to travel to these locations and pay a charge to use the telegraph and telephone equipment that the well-known telecommunications companies placed in clusters throughout rural areas in order to provide telegraph

and telephone services. Even though it was inconvenient, instant correspondence could only be provided by this one communication channel (Abdulrahman Saidu, 2017) [2].

With the advancement of technology and its increasing affordability, it eventually became practicable for farm to acquire there have telephones & telegraph machines. Additionally, since the amount of information transferred increased continuously, more conventional forms of communication were gradually replaced by phones and telegraphs. Finally, telephones emerged as the predominant mode of communication, supplanting telegraphs, thereby initiating the era of information & ICTs utilization in the agriculture sector.

The Internet and other digital communication tools gained traction more slowly. In spite of the reality that the leading agricultural institutions, including the MOS of Agriculture, were connected to the take a break of every govt., a significant number of tiny farms are still not widely connected & farms as a whole adopted this technique slowly.

ICTs use in Agricultural Data Storage

Long distance communication came into being considerably

earlier than digital data storage. Although the imparting of information was revolutionized by utilize of telephones and telegraphs, old analogue means similar to ballpoint & document were still thought to be sufficient for keeping tabs of information. Farmers just didn't have the time to master the in & out of automation at that point because book keeping had developed into a fine art but as the quantity of informing exploded over time, it became increasingly obvious that apart dated techniques had their limitations. They primary became obvious in centralized organizations like Ministry of Agriculture and Farmer Welfare which had to continuously preserve information apart manufacture on an extremely large scale. Digital storage swiftly transitioned as of being a newness to a requirement because of the fragility of paper & the enormous volume of minutes to maintain of Punch Card was a more durable, solid medium than paper, while mainframes developed near the beginning in the 1940s supplied the tremendous processing capacity needed to exploration big documents & countrywide data fast. In any event, storage media were progressively relegated to backup as systems became more trustworthy and capable of holding important data on board. Along with its growth, information flow's supporting technology advanced to its current state. Individual farms were slow to adopt data storage technologies because they had a lot less information to monitor and record. The advent of modern agriculture dramatically increased the difficulty of farming operations and the scope of production, making effective data storage crucial for individual farms.

Use of ICTs in Enhancing Agricultural Production

Numerous issues, such as dry spell, barren soil, pests, pose dangers to farmers, especially small farmers. ICTs may significantly improve this by giving access to current information on quality control laws, early alerting systems, latest varieties, innovative approaches to maximum

production, pest and disease control.

Improving Market Access

Delivering current data on market rates for goods inputs & customer behaviors and this can help farmers choose better prospect crops & produce as well as the best time and place to buy & get rid of goods, strengthening their bargaining position and financial status in the process.

Capacity-Building and Empowerment

When negotiate contribution & apart put prices, terrain claims reserve rights, & transportation projects, farmer organizations can use ICTs to develop their be the owner of capacities, better represent their constituents, and strengthen communities. Through the usage of ICTs, country societies are competent to connect by single another, which lessens the communal separation to they would if not experience. In addition, ICTs technology can increase transparency in procedures like approving land titles and passing laws.

Materials and Methods

The study was conducted in satna district of M.P. There are eight blocks in the Satna district and four blocks have been selected for the study: Majhgawan, Rampur Baghelan, Nagod, and Sohawal. The selection of blocks was done purposively because these 4 blocks were nearby the university area. From each block 4 villages were selected by random sampling method. Thus, total 16 villages have been selected from four blocks. Every villages was selected 20 respondent. Thus 320 respondents in total were selected for the research. Respondents are farmers. Data were collected through personal interviews using a structured interview schedule. The collected data were analyzed using suitable statistical tools such as frequency and percentage analysis.

Results and Discussion

Table 1: Classification of respondents based on uses of ICTs. (N=320)

S. No.	ICT usage in Agriculture area	Yes		No	
		Frequency	Percentage	Frequency	Percentage
1	ICT usage in Ag. diseases management area	288	90.00	32	10.00
2	ICT usage in Ag. information area	264	82.50	56	17.50
3	ICT use in fertilizer management	272	85.00	48	15.00
4	ICT use in weed management area	232	72.50	88	27.50
5	ICT use in information of new crop verity	248	77.50	72	22.50
6	ICT use in tillage	240	75.00	80	25.00
7	ICT use in water management	288	90.00	32	10.00
8	ICT use in value addition	224	70.00	96	30.00
9	ICT use in weather information	184	57.50	136	42.50
10	ICT use in crop marketing	232	72.50	88	27.50
11	ICT use in insect managements	192	60.00	128	40.00
12	ICT usage in Ag. advisory	200	62.50	120	37.50
13	ICT use in Information of Agriculture equipment	112	35.00	208	65.00
14	ICT usage in Ag. others area	208	65.00	112	35.00

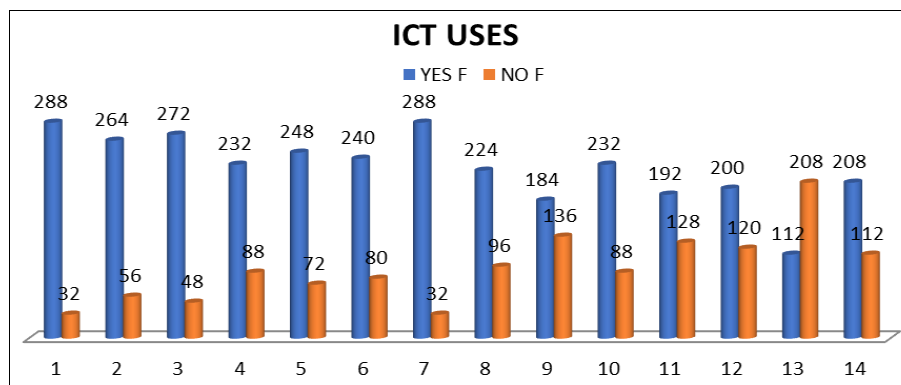


Fig 1: Respondents distribution according to the area of agriculture wherein ICT use

The study revealed varying levels of ICT adoption across different agricultural activities

High ICT usage areas

Disease management (90%), Water management (90%), Fertilizer management (85%), Agricultural information (82.5%).

Moderate ICT usage areas

New crop varieties (77.5%), Tillage (75%), Weed management (72.5%), Crop marketing (72.5%), Value addition (70%).

Low ICT usage areas

Agricultural advisory (62.5%), Insect management (60%), Weather information (57.5%), Agricultural equipment (35%).

The high adoption in disease and water management indicates that farmers rely heavily on ICT tools for critical decision-making areas. However, lower adoption in weather information and agricultural equipment suggests gaps in awareness, accessibility, or usability of ICT services.

Conclusion

The study concludes that ICT has become an essential component in agricultural development in Satna district, particularly in areas such as disease management, water management, and fertilizer use. Farmers are increasingly utilizing ICT tools to enhance productivity, access timely information, and improve decision-making.

However, the adoption of ICT is not uniform across all agricultural domains. Areas such as weather forecasting, agricultural advisory services, and information on agricultural equipment show relatively lower usage. This indicates the need for targeted interventions, including awareness programs, training, and improved accessibility of ICT tools.

To maximize the benefits of ICT in agriculture, policymakers and extension agencies should focus on strengthening digital infrastructure, promoting user-friendly applications, and enhancing digital literacy among farmers. Encouraging the use of ICT in underutilized areas can significantly contribute to sustainable agricultural development and improved livelihoods of farmers.

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