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EMPOWERING INDIAN AGRICULTURE: AWARENESS OF INFORMATION TECHNOLOGY AMONG FARMERS IN AHMEDNAGAR DISTRICT

Shaikh Nisar Nijamr and Dr. Unmesh Mandloi
Department of Management, Dr. A.P.J. Abdul Kalam University, Indore (M.P.) - 452016, India, Corresponding Author Email : shaikhnisar50@gmail.com

Abstract:
This study investigates the level of awareness and utilization of information technology (IT) among farmers in Ahmednagar District, India, with a focus on empowering Indian agriculture. In recent years, the agricultural sector has witnessed significant advancements in IT, offering tools and resources to enhance productivity, sustainability, and market access. However, the extent to which farmers in Ahmednagar District are aware of and able to leverage these technologies remains unclear. Through surveys, interviews, and data analysis, this research aims to assess farmers' knowledge, attitudes, and practices regarding IT adoption. Key areas of interest include farmers' access to IT infrastructure, their familiarity with agricultural apps, online market platforms, and extension services, as well as their perceived benefits and challenges in incorporating IT into their farming practices. The findings of this study provide valuable insights into the current status of IT awareness among farmers in Ahmednagar District and offer recommendations for improving IT literacy, promoting digital inclusion, and maximizing the potential of information technology to empower Indian agriculture.
Key Word: Farmer, Information Technology

1. Introduction

The agriculture sector in India is experiencing a major disruption due to technological advancements, particularly in the domain of information technology (IT). A considerable portion of India's population relies on modern agriculture for their livelihood, making it crucial to the country's long-term economic growth and development. Farmers may feel more agency, increase production, improve resource management, and find it easier to access markets thanks to the many tools and resources made possible by IT.

A miniature representation of India's agricultural landscape is found in the Ahmednagar District of the western state of Maharashtra. Market volatility and unpredictable weather are only two of the many challenges faced by farmers there. Because of this, the future of the sector is heavily dependent on how well farmers in Ahmednagar District comprehend and utilise information technology.

In Ahmednagar District, this research intends to probe farmers' perceptions, habits, and knowledge of IT. If stakeholders like agricultural extension services and policymakers have a good idea of where farmers are in terms of IT awareness and adoption, they can tailor interventions to help address knowledge gaps, boost digital literacy, and make better use of IT.

2. Objectives of Research

1.To study the role of Information technology in Indian agriculture sector

2. Toassess the awareness of information technology among the farmers in Ahmednagar District

3. Research Methodology

The research paper is based primary and secondary data. The survey was conducted to assess awareness of information technology among the farmers in Ahmednagar District

4. Data analysis and Discussion

The survey was conducted among 200 farmers in Ahmednagar district. The responses were collected and analysed using SPSS Software The results were discussed as below.

ANOVA						
Usage of IT tools or solution		Sum of Squares	df	Mean Square	F	Sig.
Crop yield improvement	Between Groups	8.397	3	2.799	1.907	.128
	Within Groups	581.100	396	1.467		
	Total	589.498	399			
Resource utilization efficiency (water, fertilizer, etc.)	Between Groups	22.073	3	7.358	5.125	.002
	Within Groups	568.567	396	1.436		
	Total	590.640	399			
Cost Reduction	Between Groups	22.535	3	7.512	5.514	.001
	Within Groups	539.443	396	1.362		
	Total	561.977	399			
Decision-making process	Between Groups	22.038	3	7.346	6.021	.001
	Within Groups	483.152	396	1.220		
	Total	505.190	399			
Access to real-time information	Between Groups	17.617	3	5.872	4.049	.007
	Within Groups	574.281	396	1.450		
	Total	591.897	399			
Farm productivity and management	Between Groups	255.281	3	85.094	37.410	.000
	Within Groups	900.759	396	2.275		
	Total	1156.040	399			
Market access and sales	Between Groups	1.991	3	.664	.508	.677
	Within Groups	517.107	396	1.306		
	Total	519.098	399			
Sustainability practices	Between Groups	131.923	3	43.974	16.219	.000
	Within Groups	1073.667	396	2.711		
	Total	1205.590	399			
farm management, such as farm planning, record-	Between Groups	175.299	3	58.433	26.073	.000
	Within Groups	887.479	396	2.241		

keeping, or monitoring-Farm management software	Total	1062.778	399			
farm planning, record-keeping, or monitoring-Mobile applications for record-keeping	Between Groups	124.976	3	41.659	15.819	.000
	Within Groups	1042.864	396	2.633		
	Total	1167.840	399			
IoT devices for monitoring soil moisture and weather conditions	Between Groups	4.662	3	1.554	1.436	.232
	Within Groups	428.448	396	1.082		
	Total	433.110	399			
GPS-guided equipment for precision farming	Between Groups	25.523	3	8.508	6.778	.000
	Within Groups	497.075	396	1.255		
	Total	522.597	399			
Drones or UAVs for aerial imaging and crop monitoring	Between Groups	1.686	3	.562	.413	.744
	Within Groups	538.511	396	1.360		
	Total	540.198	399			
Automated irrigation systems	Between Groups	27.454	3	9.151	6.225	.000
	Within Groups	582.136	396	1.470		
	Total	609.590	399			
Livestock management software	Between Groups	7.241	3	2.414	1.212	.305
	Within Groups	788.756	396	1.992		
	Total	795.998	399			

Source: Survey Data

- Impact on Crop Yield Improvement: The Table indicates that there is no statistically significant difference in the impact of IT tools or solutions on crop yield improvement among different groups ($F = 1.907$, $p = .128$). This suggests that the usage of IT in agricultural practices may not directly correlate with crop yield improvement in Ahmednagar District.
- Impact on Resource Utilization Efficiency: The results show a significant difference in the impact of IT tools on resource utilization efficiency ($F = 5.125$, $p = .002$). This implies that farmers who utilize IT solutions tend to exhibit better efficiency in utilizing resources such as water and fertilizer compared to those who do not.
- Impact on Cost Reduction: Similarly, there is a significant difference in the impact of IT tools on cost reduction ($F = 5.514$, $p = .001$). Farmers who incorporate IT solutions in their agricultural practices experience greater cost reduction compared to their counterparts.
- Impact on Decision-Making Process: The analysis reveals a significant difference in the impact of IT tools on the decision-making process ($F = 6.021$, $p = .001$). This suggests that IT adoption enables farmers to make more informed decisions, potentially leading to improved outcomes in their agricultural activities.
- Impact on Access to Real-time Information: There is a significant difference in the impact of IT tools on access to real-time information ($F = 4.049$, $p = .007$). This implies that

IT usage facilitates access to timely information, which can enhance farmers' ability to respond to changing conditions and market dynamics.

- Impact on Farm Productivity and Management: The analysis demonstrates a highly significant difference in the impact of IT tools on farm productivity and management ($F = 37.410$, $p < .001$). This indicates that IT adoption significantly contributes to improving farm productivity and management practices in Ahmednagar District.
- Impact on Sustainability Practices: There is a significant difference in the impact of IT tools on sustainability practices ($F = 16.219$, $p < .001$). This suggests that IT adoption plays a crucial role in promoting sustainable agricultural practices among farmers in the district.
- The findings underscore the importance of IT adoption in enhancing various aspects of agricultural practices in Ahmednagar District, including resource utilization efficiency, cost reduction, decision-making processes, access to real-time information, farm productivity, management, and sustainability practices. These insights can inform policymakers and stakeholders in designing strategies to promote the wider adoption and integration of IT solutions in agriculture, ultimately contributing to the sector's development and resilience.

5. Conclusion

It is concluded that IT adoption positively influences resource utilization efficiency, cost reduction, decision-making processes, access to real-time information, farm productivity, management, and sustainability practices. Particularly noteworthy is the substantial impact of IT on farm productivity and management, indicating that farmers who embrace IT solutions tend to achieve higher levels of productivity and better management outcomes.

From this study there are important implications for policymakers, agricultural extension services, and other stakeholders. Recognizing the significant benefits of IT adoption in agriculture, efforts should be directed towards promoting digital literacy, providing access to IT infrastructure, and offering training and support to farmers in utilizing IT tools effectively. The transformative potential of information technology in empowering Indian agriculture. By harnessing the power of IT, farmers in Ahmednagar District can enhance their productivity, profitability, and resilience, thereby contributing to the sustainable development of the agricultural sector and the broader economy.

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