Original Research Article

CONSTRAINTS FACED BY THE COFFEE PLANTERS WHILE EMPLOYING ICT TECHNOLOGIES IN DINDIGUL DISTRICT OF TAMIL NADU

ABSTRACT

Aims: ICT is crucial in bringing cutting-edge technologies to farmers and increasing farm income. However, this is not the case in practise, as farmers confront a number of obstacles when it comes to ICT adoption. Recognizing this issue, a study was conducted to learn about the constraints farmers' confront when utilising ICT.

Study Design and Methodology: This study was undertaken on purpose in four coffee board liaison zones of Dindigul district in Tamil Nadu. In each zone, a sample of 40 farmers was chosen at random, for a total of 160 sample farmers for the study. To examine the objectives, a well-structured and pre-tested interview schedule was employed, and data were obtained through personal interviews.

Results: The study discovered that lack of confidence in operating ICTs, lack of awareness of the benefits of ICTs, erratic power supply, low network connectivity, low ICT literacy, lack of skill in handling ICTs, negative attitude towards ICTs, lack of training and practical exposure, poor finance, insufficient regional language, lack of repairing facilities, and high cost of repairing ICTs were the major constraints faced by farmers in the effective use of ICTs.

Conclusion: There has been an increase in the level of availability and accessibility of ICTs among the farmers in the study area, there is a need to ensure that the farmers' problems are addressed in order for the farming community to reap the greatest benefits from improved access to information services through the use of ICTs for agriculture and other developmental purposes.

Keywords: ICT, Constraints of farmers, ICT utilization, ICT in agriculture

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INTRODUCTION

Coffee is one the most important plantation crop in India. Indian coffee is a remarkable beverage, with interesting complexity and thrilling strength. India is the only country where 100% of its coffee is grown in the shade. In India, we have around 375000 coffee growers, most of them are in the hilly areas of Karnataka (54 per cent), followed by Kerala and Tamil Nadu. Coffee cultivation is also fast spreading in unconventional areas of Andhra Pradesh, Odisha, and the North Eastern states. Of these, around 98% are small-time farmers who work in silos. Coffee is primarily an export crop, with 65 percent to 70 percent of coffee produced in the country exported and the remainder eaten domestically. India has three distinct coffee-growing regions: the traditional region, which includes Karnataka, Kerala, and Tamil Nadu; the new areas developed in the non-traditional areas of Andhra Pradesh and Odisha on the country's eastern coast; and the third region, which includes the north-eastern Indian states of Assam, Manipur, Meghalaya, Mizoram, Tripura, Nagaland, and Arunachal Pradesh, collectively known as the "Seven Sister States of India." Tamil Nadu is a traditional coffee growing area in India, producing 17,970 Metric Tonnes of coffee in the year 2021-22. Tamil Nadu is a major coffee producing state, accounting for more than 5% of total coffee production in India. (Coffee Board, 2022).There is an urgent need for a vibrant, dynamic, and innovative approach to agricultural extension in order to attain the desired growth rate and better serve farmers. Furthermore, land and water resources are nearly depleted; hence, ensuring food security is significantly dependent on "Knowledge Resource." (National Sample Survey Organization, 2005).Information and communication technology (ICT) is a major driving force in modern civilization, providing new techniques and methods of sharing, transmitting, and upgrading knowledge and information across various societies. ICT might be used to improve, supplement, or replace current information systems and networks.In India, there is a severe shortage of extension officers at all levels; just 91,288 of the 143,863 positions in the Department of Agriculture are filled. Furthermore, one extension officer served 1162 operational holdings, indicating that the national ratio of extension workers to operational holdings is low at 1:1162 as opposed to the suggested 1:750. (Gulati et al.

2018). Because of the large number of empty positions or gaps in extension employees, extension services only reach 6.8 percent of farmers on average. (FAO 2012).

India have more potential to export coffee but are not able to meet the quality and fetch high price in foreign market. Production and marketing of these valuable products using Information and communication technology (ICT) will improve quality of the produce through timely operations and access to market through accurate market information. ICT can play a significant role in agricultural information and knowledge transmission. E-agriculture aids in the dissemination of obtained information to farmers, who are usually located in rural regions, for use in their daily activities. (WSIS,2003).The use of ICTs is expanding in developing nations, and its importance is being examined by numerous scholars. However, as the spread develops, farmers will confront a number of problems that may impede their use of ICTs. In order to better serve the community, authorities and service providers must overcome these limits. Several studies have been undertaken to determine the constraints that farmers confront.

RebekkaSyiem*et al*., (2015)found that in Meghalaya state the level of availability and accessibility of ICTs was the highest for mobile phones followed by television and radio respectively. The study has found that lack of confidence in operating ICTs is the major constraint faced by the farmers followed by erratic power supply, low network connectivity, lack of awareness of benefits of ICTs, etc. According to Farooq et al., (2020) the major constraints faced by ICT users were poor internet connectivity (76.67 percent) and a lack of network coverage in rural areas (62.50 percent) among physical, economic, and infrastructural problems, and a lack of region-specific information (94.17 percent) and trustworthy information (35.83 percent) among operational problems.ICT is critical in providing farmers with cutting-edge technologies and increasing farm income. However, this is not the reality on the ground, as farmers face a number of challenges when it comes to ICT adoption. Recognizing this issue, a study was conducted with an objective to learn about the constraintsfarmers' face when utilising ICT. This study gives a holistic view about the problems faced by the farmers to the policy makers and authorities who can bring necessary changes to increase the ICT penetration in the study area.

METHODOLOGY

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The current study was undertaken on purpose in four coffee board liaison zones of Dindigul district in Tamilnadu, namely Permualmalai, Adalur, Pannaikadu, and Manalur zones, to assess the constraints encountered by farmers in ICT adoption. In each zone, a sample of 40 farmers was chosen at random, for a total of 160 sample farmers for the study. To examine the objectives, a well-structured and pre-tested interview schedule was employed, and data were obtained through personal interviews. To analyse the collected data, conventional analysis and Garrett ranking technique was employed.

RESULTS AND DISCUSSION

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Socio-economic variables of the respondents

Table 1 Demographic characteristics of respondents

(N=160)*

Socio-economic factors	Mean	Standard Deviation	Number (Percentage)
Age (years)	50.28	11.59	-
Young (up to 30)	-		5 (3.1)
Middle aged (31-50)	-		79 (49.3)
Old aged (above 50)	-		76 (47.5)
Education level	-		-
Illiterate (1)	-		10 (6.2)
Primary education (2)	-		28 (17.5)
Secondary education	-		65 (40.6)
Graduation and above	-		57 (35.6)
Farming experience (years)	23.77	10.31	-
Low (up to 13)	-		23 (14.3)
Medium (13 – 34)	-		111 (69.3)
High (above 34)	-		26 (16.2)

Farm size	3.37	4.53	-
Marginal	-		87 (54.3)
Small	-		46 (28.7)
Semi-Medium	-		21 (3.1)
Medium	-		5 (3.1)
Large	-		1 (0.6)
Annual income (Thousand Rs.)	359.6	311.3	-
Low income (up to 3 lakh)	-		97 (60.6)
Medium income (3 to 7 lakh)	-		45 (28)
High income (above 7 lakh)	-		18 (11.2)
Training participation	-		-
0 – no participation	-		95 (59.3)
1 - participation	-		65 (40.6)

(Figures in parenthesis indicates percent to the total)
Multiple responses

Table 1 displays data on respondents' age, education, land holding size, years of farming experience of the household head, and total household income. Farmers had an average age of 50 years, and the majority of respondents (49.3 percent) were middle-aged, followed by the elderly (47.5 percent). This demonstrates that there are more elderly persons involved in coffee cultivation than young people. If a community's younger population is too small, it is always a threat. In terms of respondents' educational status, the majority (40.6 percent) had secondary education, followed by graduation and above (35.6 percent), and primary education (17.5 percent). The study findings led to the conclusion that future ICT development programmes will be beneficial in the current study areas due to the respondents' higher educational qualifications. With a mean score of 23 years, the respondents also had extensive farming experience. 54.3 percent of the 160 respondents were marginal farmers, followed by 28.7 percent of respondents were small farmers. It was also discovered that 60% of respondents had a low income, 28% had a medium income, and 11.2 percent had a high income. The data also found that just 40 percent of farmers participated in training programmes, with the bulk of farmers (60 percent) not participating in any training programmes.

Constraints faced by the farmers in using ICTs

Table 2 Constraints faced by the farmers while using ICTs

Sl. No	Constraints	Mean Score	Rank
1	Lack of confidence in operating ICTs	72.53	I
2	Lack of awareness of benefits of ICTs	69.10	II
3	Erratic power supply	63.51	III
4	Low Network connectivity	61.91	IV
5	Low level of ICT literacy	51.93	V
6	Lack of skill in handling ICTs	50.50	VI
7	Negative attitude towards ICTs	49.38	VII
8	Lack of training and practical exposure towards ICTs	39.50	VIII
9	Non availability of multilingual ICT services	38.82	IX
10	Non affordable to implement ICT	33.77	X
11	Non availability of ICT service centres	33.27	XI
12	High cost of servicing ICTs	30.74	XII

Table 2 shows the findings of the constraint analysis, which are explored further below. Farmers' main barrier was an absence of confidence in using ICTs (72.53), particularly mobile phone applications and other computer-based technologies, due to a lack of knowledge about how to utilise those ICTs (69.10) appropriately to gain benefits. Farmers also encountered intermittent power fluctuations (63.51), which prevented them from using ICTs such as mobile phones, computers, TVs, and so on. This slowed the study area's rapid ICT development. Network connectivity (61.91) was ranked fourth as one of main restriction encountered by farmers.Farmers said that connectivity is extremely restricted and limited to only a few networks. As a result, farmers do not regard mobile phone use as reliable and reputable when inadequate network access is a barrier to their use.

Farmers also reported having trouble using mobile applications and the internet owing to a lack of experience. This, however, is tied to a lack of ICT literacy (51.93). Some respondents stated that they are unable to use most of the basic capabilities of mobile phones, such as SMS, due to illiteracy and a lack of expertise in utilising those ICTs (50.50). The usage of ICTs was further hampered by the attitudes of some of the elderly farmers (49.38). Some of the farmers expressed concern about a lack of training and practical experience (39.50) with mobile phone applications and the internet, and they believed that they required some training to educate and teach them how to use ICTs that could aid them in coffee growing and marketing. Some of the farmers struggled to understand the English language. This is because most mobile phones and PCs have English language menus (38.82). Farmers also claimed that a lack of financial support (33.77) made it difficult for them to use advanced ICTs and other applications. Farmers also cited a dearth of mending centres and ICT repair facilities (33.27) in the communities for mobile phones and televisions. As a result, farmers were forced to fix their things and transport them to town at a considerable cost, incurring additional fees and loss for the farmer. Farmers also complained about the high expense of fixing ICTs (30.74) such as mobile phones and television sets. This, however, prevented them from using ICTs on occasion because electronic items were frequently broken. The findings are consistent with Agwu et al., (2008), Shankariah and Swamy (2012), and Rebekkasyiem et al., (2015).

CONCLUSION

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The study discovered that lack of confidence in operating ICTs, lack of awareness of the benefits of ICTs, erratic power supply, low network connectivity, low ICT literacy, lack of skill in handling ICTs, negative attitude towards ICTs, lack of training and practical exposure, poor finance, insufficient regional language, lack of repairing facilities, and high cost of repairing ICTs were the major constraints faced by farmers in the effective use of ICTs. However, constraint analysis is crucial in order to reach out to farmers' voices and issues in order for planners, administrators, development workers, and policymakers to build developmental programmes and interventions that can cater to farmers' requirements and benefit them more effectively. Since there has been an increase in the level of availability and accessibility of ICTs among the farmers in the study area, there is a need to ensure that the farmers' problems are addressed in order for the farming community to reap the greatest benefits from improved access to information services through the use of ICTs for agriculture and other developmental purposes.

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