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### Constraints faced by farm youth in the utilization of Information and Communication Technology (ICT) tools and suggestions to overcome these constraints

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#### Abstract

The study was conducted in the Coimbatore district, Tamil Nadu, in 2023 to assess the extent of ICT tool utilization among farm youth, identify constraints, and gather suggestions for improvement. Coimbatore was purposively chosen due to its high youth population and ICT exposure. A total of 120 farm youth were selected from four randomly chosen blocks using proportionate random sampling. An ex-post facto research design was followed, and data were collected through personal interviews using a structured, pre-tested schedule. Statistical tools like frequency, percentage, mean, standard deviation, and Rank-Based Quotient (RBQ) were employed for data analysis. The results revealed that farm youth encountered several significant constraints in utilizing ICT tools effectively. The major constraints were poor economic condition of farm youth (88.33%), Lack of sufficient skills in the usage of farm-related ICT applications by farm youth (87.50%), high cost of ICT gadgets like smartphones, computers, etc (79.17%), and limited awareness of ICT benefits (76.67%). Other challenges included a lack of subsidies, inadequate training and exposure, non-availability of ICT gadgets and spare parts in local markets, and poor infrastructure and servicing facilities in rural areas. To address these issues, the farm youth proposed key suggestions. Organizing a training program for farmers related to ICT (86.67%) was the most common suggestion, followed by the source of information should be in the regional language (82.50%), improving power supply (76.67%), and improving internet connection (71.67%). Additional recommendations included that farmers' awareness about the advantages of ICT tools needs to be increased, encouraging ICT use at the village level, and disseminating market information through digital platforms.

**Keywords:** ICT, farm youth, constraints, training, Coimbatore, digital divide, rural development

#### Introduction

The United Nations defines youth as individuals between the ages of 15 and 24 years. As per the World Youth Report (2022), the global youth population is approximately 1.2 billion and is expected to grow by 7%, reaching 1.3 billion by 2030 (Annual report, 2023) <sup>[1]</sup>. In this demographic landscape, India holds a significant position as the world's youngest nation, with nearly 70% of its population under the age of 35. This demographic advantage offers immense potential to harness the energy, creativity, and adaptability of the younger generation to revitalize and transform Indian agriculture. Equipping youth with relevant skills, knowledge, and attitudes is essential to channel their innovative capabilities toward addressing key agricultural

challenges. Young farmers, as a critical human resource, play a pivotal role in modernizing the agricultural sector, promoting sustainability, and ensuring food and livelihood security for future generations <sup>[2]</sup>.

Agriculture plays a vital role in India's economy. 54.6 per cent of the workforce is engaged in agriculture and allied sector activities (Census 2011) and accounts for 18.2 per cent of India's GVA at current prices during 2022-23 <sup>[3]</sup>. Information and Communication Technology (ICT) plays a pivotal role in meeting the rising global food demand by enabling the timely collection, analysis, and dissemination of accurate agricultural information. This includes weather forecasts, market trends, input availability, and pricing dynamics. ICT facilitates research and development,

enhances knowledge transfer to farmers, and strengthens linkages between producers and consumers. Moreover, ICT-based services act as a vital conduit through which farmers gain access to crucial knowledge, resources, and innovations, ultimately enhancing farm productivity, decision-making, and livelihood outcomes. The development of agriculture in the current context increasingly relies on bridging the knowledge gap between information sources and end users. In this regard, Information and Communication Technology (ICT) plays a crucial role in enhancing agricultural growth and efficiency. However, to fully realize its potential, adequate budgetary support is required for the creation and expansion of digital infrastructure, particularly in rural areas, to minimize the prevailing digital divide. To address these challenges, mobile-based ICT solutions are being deployed across the country. For instance, farmers can now access expert guidance and raise queries related to agriculture and allied sectors through platforms such as Kisan Call Centres (KCCs) and various state-level agricultural portals. Generating awareness among young and middle-aged farmers about the availability of ICT services is a critical initial step to ensure their active participation in such initiatives (Shanthya and Elakkiya 2017) <sup>[4]</sup>.

## Materials and Methods

The study was conducted in the Coimbatore district of Tamil Nadu during the year 2023. Coimbatore ranks among the top ten districts in Tamil Nadu in terms of youth population (Census, 2011) <sup>[5]</sup>, which was a major factor for its selection as the study area. In addition, Coimbatore is one of the prominent IT hubs in the state, indicating greater exposure and entrepreneurial opportunities for youth. The researcher's familiarity with the socio-economic conditions and regional dialect of the district also contributed to the selection of Coimbatore for this study.

Coimbatore district comprises twelve administrative blocks, namely Karamadai, Madukkarai, Periyarayakkanpalayam, Sarcarsamakulam, Thondamuthur, Sultanpet, Annur, Sulur, Pollachi North, Pollachi South, Kinathukadavu, and Anaimalai. Among these, four blocks—Thondamuthur, Annur, Kinathukadavu, and Madukkarai—were selected using a random sampling method. From each selected block, 30 farm youths were chosen, resulting in a total sample size of 120 respondents. A proportionate random sampling technique was employed for the selection process. Data for the present study were collected through personal interviews with the selected farm youth. An ex-post facto research design was used for the study. Statistical tools such as frequency, percentage, mean, standard deviation, and Rank-Based Quotient (RBQ) were employed to systematically analyze the data and derive meaningful conclusions.

The study focused on assessing the extent to which farm youth utilized Information and Communication Technologies (ICTs) in the context of agriculture. It also

aimed to identify the specific constraints faced by farm youth in accessing and effectively using ICT tools for agricultural purposes at the time of data collection. In this study, constraints were defined as the barriers or challenges encountered by farm youth that hindered the optimal use of ICT tools in their agricultural activities. Additionally, suggestions were collected from respondents to address and overcome these identified constraints.

## Results and Discussion

### Constraints faced by Farm Youth in Utilization of Information and Communication Technology (ICT) tools

It is evident from Table 1 that 'Poor economic condition of farm youth' was ranked as the most significant constraint by farm youth (88.33%). They felt that the lack of financial resources of rural people leads to an inability to purchase ICT tools. 'Lack of sufficient skills in the usage of ICT tools by farm youth' was given second rank by farm youth (87.50%). Respondents expressed that their limited awareness and technical know-how restricted their ability to effectively access and utilize these applications for agricultural purposes. 79.17 per cent of the farm youth stated that the 'High cost of ICT gadgets like smartphones, computers, etc' was the third major constraint. The high initial investment prevented them from adopting ICT tools. 'Lack of awareness of the benefits of ICTs' was identified as a major constraint and was ranked fourth by 92% of the farm youth. This limited awareness was primarily attributed to insufficient exposure to training programs related to the effective application of ICT tools in agriculture. The fifth-ranked constraint was the 'Lack of subsidies for ICT gadgets' (75.00%), emphasizing the need for government support to make ICT tools more accessible. The above findings were in line with Sandhiya *et al* (2022) <sup>[6]</sup> and Mahajan *et al* (2023) <sup>[7]</sup>.

'Insufficient training and practical exposure towards ICTs' (70.83%) was ranked sixth, as many youths lacked access to specialized training programs and faced barriers such as unawareness of training schedules and long travel distances. The seventh-ranked constraint was 'Non-availability of ICT gadgets and spare parts in local markets' (70.00%), reflecting poor market penetration in rural areas. 'Inadequate infrastructural facilities for the maintenance of ICT tools' was ranked eighth (66.67%), highlighting the lack of support systems in rural regions. 'High cost of servicing charges for ICT gadgets' (60.83%) was placed ninth, as expensive repairs further discouraged ICT usage. Finally, 'Insufficient servicing centres for ICTs in villages' (58.33%) was the tenth-ranked constraint, indicating a lack of after-sales service infrastructure, which affected the long-term usability of ICT tools among farm youth. The above findings were in accordance with Balu *et al* (2018) <sup>[8]</sup> and Narendra *et al.* (2022) <sup>[9]</sup>.

**Table 1:** Constraints faced by the Farm Youth in Utilization of ICT tools (n=120)

Sl. No	Constraints	Frequency	Per centage	Rank
1	Poor economic condition of farm youth	106	88.33	I
2	Lack of sufficient skills in the usage of farm-related ICT applications by farm youth	105	87.50	II
3	High cost of ICT gadgets like smartphones, computers, etc	95	79.17	III
4	Lack of awareness of the benefits of ICTs	92	76.67	IV
5	Lack of subsidies for ICT gadgets	90	75.00	V
6	Insufficient training and practical exposure towards ICTs	85	70.83	VI
7	Non-availability of ICT gadgets and spare parts in local markets	84	70.00	VII
8	Inadequate and infrastructural facilities for the maintenance of ICT tools	80	66.67	VIII
9	High cost of servicing charges for ICT gadgets	73	60.83	IX
10	Insufficient servicing centres of ICTs in villages	70	58.33	X

### Suggestions to overcome the Constraints faced by Farm Youth in utilization of Information and Communication Technology (ICT) tools

Based on the constraints, recommendations were gathered from the Farm Youth on how to address these challenges. The suggestions are outlined in Table 2, organized according to their level of significance. The ranking of suggestions was assessed by considering their frequency and corresponding percentages.

Based on Table 2, 86.67 per cent of the farm youth suggested that 'Organizing a training program for farmers related to ICT' should be the top priority. They emphasized the need for hands-on training to enhance awareness and practical understanding of ICT tools, as experiential learning is considered the most effective approach. Then it is followed by 'the Source of information should be in the regional language' (82.50%). Because they believed that complex terminologies and technical concepts could be simplified and better understood when conveyed in the local dialect. 76.67 per cent of the farm youth advocated for

'improve the power supply'. They observed that a stable and uninterrupted power source would significantly increase the use and duration of ICT tool utilization. The 'Improvement in internet connection' ranked fourth (71.67%). Improved access to high-speed internet was seen as essential for enabling faster and broader adoption of ICT tools in rural areas. 69.17% of the farm youth highlighted the 'Farmer awareness about the advantages of ICT tools needs to be increased'. They recommended that this could be achieved through more frequent and focused training programs. 68.33% proposed 'encourage to use of ICT tools at the village level'. Farm youth noted that local-level awareness campaigns and demonstrations would help them better understand and apply ICTs in agriculture. Finally, 60.83 per cent of farm youth suggested that 'marketing information should be ICT tools'. They felt that real-time access to market prices would empower them to make informed selling decisions and improve profitability. Similar findings reported by Mishra *et al* (2020)<sup>[10]</sup> and Prakash *et al* (2023)<sup>[11]</sup>.

**Table 2:** Suggestions to overcome the Constraints faced by Farm Youth in Utilization of ICT tools (n=120)

Sl. No	Suggestions	Frequency	Per cent	Rank
1	Organizing a training program for farmers related to ICT	104	86.67	I
2	The source of information should be in the regional language	99	82.50	II
3	Improve the power supply	92	76.67	III
4	Improvement in internet connection	86	71.67	IV
5	Farmer awareness about the advantages of ICT tools needs to be increased	83	69.17	V
6	Encourage to use of ICT tools at the village level	82	68.33	VI
7	Marketing information should be through ICT tools	73	60.83	VII

### Conclusion

The study highlights several key constraints faced by farm youth in the utilization of ICT tools. The most significant among these were the Poor economic condition of farm youth (88.33%), the Lack of sufficient skills in the usage of farm-related ICT applications by farm youth (87.50%), and the high cost of ICT gadgets such as smartphones and computers (79.17%). The lack of awareness of the benefits of ICTs (76.17%) and the lack of subsidies for ICT gadgets (75.00%). To address these constraints, the major suggestions put forth by the farm youth include organizing a training program for farmers related to ICT (86.67%), the source of information should be in the regional language (82.50%), improving power supply (76.67%), and improving internet connection (71.67%).

### Abbreviation

ICT- Information and Communication Technology.

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