



PROFILE CHARACTERISTICS AND CONSTRAINTS FACED BY FARMERS USING ICT TOOLS

P.B. Pradeep Kumar

Department of Agricultural Extension Education, ANGRAU-Datt Centre, Paderu-531 024.

Date of Receipt: 18-12-2025

ABSTRACT

Date of Acceptance: 30-01-2026

The present investigation was conducted in Anakapalle district of Andhra Pradesh to study attitude of farmers towards use of information and communication technology on agricultural production. Three mandals from Anakapalle district of Andhra Pradesh state selected for the study. An Ex-post-facto research design was followed for the study. The constraints faced by respondents while using the ICT tools and techniques were, lack of awareness of proper functioning about ICT tools (69.33%), lack of training of the farmers towards use of different ICT tools (68.00%), inadequate internet supply (67.33%), lack of uninterrupted power supply (66.00%), difficulty in understanding the content language of ICT gadgets (66.67%), lack of local language in handling and understanding of software (66.67%), poor mobile/internet connectivity in rural areas (66.00%) and beyond this some other constraints also faced by farmers.

KEYWORDS: Utilization of ICT tools, constraints.

INTRODUCTION

Information and Communication Technology (ICT) can revolutionize Indian farming sector and can benefit all farmers including small landholders. Over the years, digital agriculture in India has evolved from basic information and communication tools to more advanced and integrated systems. Today the focus is on real time monitoring, data driven planning, modern technologies, and strong decision support systems. ICT in agriculture provides farmers with vital information pertaining to sowing, crop protection, and improving soil fertility that enables them to improve agricultural productivity. Weather-related advisories and alerts help them prepare for sporadic events such as floods, drought, or even pest and disease outbreaks, thus preventing significant crop loss.

The increasing penetration of budget-friendly mobile phones and the internet is an added advantage for farmers living in remote areas in several emerging nations. Access to inexpensive mobile devices has now made it easier for them to acquire additional information and services that enable informed decision-making. ICT helps in growing demand for new approaches. It also helps in empowering the rural people by providing better access to natural resources, improved agricultural technologies, effective production strategies, markets, banking and financial services etc. to know the awareness of farmers on ICT and its impact on marketing and economic conditions in

agriculture. The study was conducted with an objective of assessing profile characteristics of the respondents and also elicited the constraints faced and suggestions rendered by the respondents in utilization of ICT tools. (Jamdhade S.S.2015.)

MATERIAL AND METHODS

Ex-post-facto" research approach was used for study. The present study was conducted in Anakapalle district of Andhra Pradesh state during 2022-2023. Three mandals from Anakapalle district and five villages from each mandal were selected randomly for the study. From each selected village, ten respondents were selected randomly, those having mobile phones with internet facilities and engaged in agricultural operations were selected, and a total of one hundred fifty respondents were considered for the present study. Data was gathered using a structured interview schedule designed for study. The collected data was analyzed, classified and tabulated. Statistical tools such as frequency, percentage and ranking were used to interpret findings and draw conclusions.

The findings indicate that respondents face multiple constraints in the use of ICT tools across socioeconomic, infrastructural, and technical dimensions. Among socioeconomic constraints, poor economic condition (67.33%) and difficulty in understanding content language (66.67%) emerged as the most critical issues, followed by lack of skills in using ICT tools (60.00%), high cost

*Corresponding author, E-mail: pb.pradeepkumar@angrau.ac.in

Table I. Profile of respondents**1. Age**

S. No.	Age group	F	%
1.	Young (Up to 28 years)	25	16.33
2.	Middle (29 to 49 years)	100	68.34
3.	Old (50 years and above)	25	16.33
Total		150	100.00

Majority of respondents (68.34%) belong to the middle age group (29–49 years). Young and old age groups are equally represented, each contributing 16.33% of the sample.

2. Education

S. No.	Category	F	%
1.	Illiterate	15	9.3
2.	Can read and write only	20	12.6
3.	Primary school level	23	16.0
4.	Middle school level	56	38.2
5.	High school level	34	22.6
6.	Graduate	2	1.3
7.	Other	0	0
Total		150	100.00

Majority of respondents have education up to middle school (24%) and high school (22%), indicating a moderate level of education. A smaller share includes primary level (16%), read and write only (12.67%), illiterate (9.33%), and very few graduates (1.3%), with none in the other category.

3. Occupation

S. No.	Occupation	F	%
1.	Farming	65	43.34
2.	Dairy Farming	20	13.33
3.	Goat Farming	10	6.67
4.	Business	25	16.66
5.	Service	20	13.33
6.	Other	10	6.67
Total		150	100.00

The majority of respondents are engaged in farming (43.34%), followed by service (13.33%) and business (16.66%). Smaller proportions are involved in dairy farming (13.33%), other activities (6.67%), and goat farming (6.67%), indicating agriculture as the main occupation.

4. Family Size

S. No.	Family size	F	%
1.	Small (up to 4 members)	40	26.67
2.	Medium (5 to 7 members)	50	33.33
3.	Large (above 7 members)	60	40.00
Total		150	100.00

The majority of respondents belong to large families (40.00%), followed by medium families (33.33%). A smaller proportion comes from small families (26.67%), indicating a prevalence of bigger family sizes.

5. Farming experience

S. No.	Farming experience	F	%
1.	Low (up to 8 years)	42	28.00
2.	Medium (9 to 30 years)	31	20.66
3.	High (above 30 years)	77	51.34
Total		150	100.00

Majority (51.34%) of respondents have high experience (above 30 years) followed by low experience (28%) and medium experience (20.66%) categories.

6. Utility of ICT in extension

S. No.	Utility of ICT	F	%
1.	Occasionally	19	12.00
2.	Once in a week	17	11.33
3.	Daily	115	76.67
Total		150	100.00

Most respondents use ICT daily (76.67%), indicating high utility in extension activities followed by occasionally (12%) and once a week (11.33%).

7. Methods of learning ICT skills

S. No.	Methods of learning ICT skills	F	%
1.	Low	72	48.00
2.	Medium	54	36.00
3.	High	25	16.00
Total		150	100.00

Most respondents have a low level of ICT learning skills (48.00%), followed by a medium level (36.00%). Only a small proportion (16.00%) have high ICT skills, indicating the need for improvement in ICT training.

8. Awareness about ICT

S. No.	Level of awareness	F	%
1.	Low (up to 6)	9	6.00
2.	Medium (7-10)	116	77.33
3.	High (Above 10)	25	16.67
Total		150	100.00

Majority of respondents fall under the medium category (77.33%). A smaller proportion are in the high category (16.67%), while only 6.00% are in the low category.

9. Level of Knowledge

S. No.	Level of knowledge	F	%
1.	Low (up to 4)	50	33.33
2.	Medium (5 to 7)	91	60.67
3.	High (7 & above)	9	6.00
Total		150	100.00

Majority of respondents have a medium level of knowledge (60.67%), followed by a low level (33.33%). Only a small proportion (6.00%) possess a high level of knowledge.

Table II. Attitude of farmers towards ICT tools

S. No.	Level of attitude	F	%
1.	Less favourable (up to 60)	22	14.67
2.	Moderately favourable (60-75)	111	74.00
3.	Highly favourable (above 75)	17	11.33
Total		150	100.00

Majority of respondents have a moderately favourable attitude towards ICT tools (74.00%), followed by a less favourable attitude (14.67%). Only a small proportion (11.33%) exhibit a highly favourable attitude, indicating scope for improving perceptions towards ICT.

Table 1. Analysis of Variance for cane yield, yield attributing and quality characters in Sugarcane (*Saccharum spp.*)

S. No.	Characters	Mean sum of squares		
		Replications (df: 1)	Treatments (df: 50)	Error (df: 50)
1.	Germination % at 30 DAP	24.80	29.504**	6.817
2.	Tillers at 120 DAP ('000/ha)	184.55	404.4**	49.83
3.	Number of millable canes ('000/ha)	0.001	121.37**	19.6
4.	Number of nodes per cane	0.48	34.77**	6.447
5.	Cane length (cm)	518.63	2704.16**	348.63
6.	Cane diameter (cm)	0.113	0.127*	0.067
7.	Single cane weight (kg)	0.04	0.19**	0.05
8.	Brix % at 10 th month	0.0519	5.474**	0.366
9.	Sucrose % at 10 th month	0.022	4.67**	0.329
10.	Purity % at 10 th month	0.106	1.376**	0.303
11.	CCS % at 10 th month	0.006	2.363**	0.168
12.	Brix % at 12 th month	0.094	4.152**	0.472
13.	Sucrose % at 12 th month	0.176	3.8**	0.436
14.	Purity % at 12 th month	0.96	1.365**	0.266
15.	CCS % at 12 th month	0.139	1.968**	0.232
16.	Top leaf weight (kg)	0.001	0.005**	0.001
17.	Fibre %	0.047	3.826**	0.208
18.	Reducing sugars %	0.067	0.879**	0.065
19.	Leaf area index	0.281	1.182**	0.079
20.	CCS yield (t ha ⁻¹)	2.101	18.498**	4.646
21.	Cane yield (t ha ⁻¹)	284.90	1056.53**	393.714

of devices (58.67%), and lack of belief in e-sources (57.33%). With respect to infrastructural constraints, lack of awareness about proper functioning of ICT tools (69.33%) ranked highest, followed by inadequate internet supply (67.33%), poor connectivity and power supply (66.00%), and insufficient maintenance facilities (62.67%). In terms of technical constraints, lack of training (68.00%) and absence of local language support (66.67%) were the major challenges, along with issues such as misleading information (66.00%), communication gaps (65.33%), and untrained operators (64.00%). Overall, these findings highlight the need for improving economic access, strengthening infrastructure, and enhancing technical training to promote effective utilization of ICT tools (Syiem R, Raj S. 2015).

The study concludes that farmers in the study area have a moderate level of awareness (77.33%), knowledge (60.67%), and attitude (74.00%) towards ICT tools, with a majority using ICTs daily (76.67%) for agricultural activities. However, the overall level of ICT learning skills remains low (48.00%), indicating that although farmers are exposed to ICTs, their capacity to effectively utilize these tools is still limited. The major constraints identified include poor economic conditions, lack of awareness and training, inadequate internet and power supply, and absence of local language support, which hinder optimal utilization of ICT tools.

Based on these findings, it is evident that there is a need to strengthen capacity-building programmes through regular training, demonstrations, and extension support to enhance farmers' ICT skills. Efforts should be made to improve rural infrastructure, including reliable internet connectivity and power supply, along with promoting affordable ICT tools. Additionally, developing user-friendly and local language-based digital content, and increasing awareness about the proper use of ICT tools, can significantly improve adoption and effective utilization, thereby contributing to enhanced agricultural productivity and rural development.

LITERATURE CITED

Jamdhade S.S.2015. Information and Communication Technology (ICT) Tools used by orange growers (Master's Thesis). Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

Mittal S, Mehar M.2015. Socio-economic factors affecting adoption of modern ICT by farmers in India-Analysis using Multivariate Probit model. *The Journal of Agricultural Education and Extension*,22(2):199- 212.

Naik B.J.2018. A Study on ICT Tools Usage by the Farmers in Anantapur District of Andhra Pradesh (Master's Thesis). Acharya N. G. Ranga Agricultural University, Guntur, Andhra Pradesh.

Syiem R, Raj S. 2015. Access and usage of ICTs for agriculture and rural development by the tribal farmers in Meghalaya state of North-East India. *Agrar informatika. Journal of Agricultural Informatics*.:6(3):24-41.