

## A Study on Profile of Information and Communication Technology (ICT) Tools Usage Farmers of Anantapur District of Andhra Pradesh

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### ABSTRACT

In the current scenario agricultural communication sources are often applied for offering agricultural facts to the farmers for getting remunerative prices to their products. During this context, the study was conducted to understand the profile of the respondents and to get the relationship with the ICT tools usage by the farmers of Anantapur district of Andhra Pradesh during the year 2017-2018. An Ex-post facto research design was used. Data for the study became generated from a sample of 120 respondents using structured interview schedule. Findings indicated that majority of the farmer respondents have medium age, possession of ICT tools, annual income, social participation, extension contact, innovativeness, economic orientation, risk orientation, scientific orientation and cosmopolitanism. Majority of the farmers have high school education, small land holding, 20-30 years of farming experience and 14-21 years of experience in usage of ICT tools. The *r* values of education, land holding, experience in usage of ICT tools, possession of ICT tools, annual income, training undergone, extension contact, innovativeness, economic orientation, scientific orientation and cosmopolitanism was positively and significantly correlated with the utilization of ICT tools. Whereas, computed '*r*' value of aged was negatively significant, '*r*' value of experience in farming and risk orientation was negatively non-significant and '*r*' value of social participation was positively non-significant with the utilization of ICT tools.

**Key words:** ICT tools, Utilization, Farmers, Cosmopolitanism, Risk orientation

The use of up-to-date day communication technology in agricultural extension service delivery has greater the efficiency of Research – Extension – Farmer linkage system much greatly. Farmers are keen to urge quick, actual and fruitful information within the changing scenario of agriculture at global level. Dissemination of the specified and updated agricultural information to the farmers in scattered villages at the variegated geographical situations in India is extremely difficult task. Technology transfer to the extent of farmers isn't always a one-time exercise because new farm technology is being continuously evolved. Endless flow of technologies within the appropriate way is critical to provide quick advantage of this improvement to the farmers [1]. Farmers use many sources to realize the knowledge and information they have to manage their farms well. The information and knowledge are increasingly been visible as

new factors of agricultural production partially replacing the normal factors of production land, labour and capital. The expansion of communication technologies may be a process that's both a product and a stimulus parallel phenomenon of globalization [2].

Effective communication from distinctive sources and channels are the essence of extension, which offers know-how and information for rural people to switch their behaviour within the ways in which provide sustainable advantages to them and to the society [3]. According to Technical Centre for Agricultural and Rural Cooperation [4] efficient information dissemination remains the important thing to bridge the gap between developed and underdeveloped countries. This is often the challenge that confronts development actors and stakeholders in developing countries. Information and therefore the technologies that facilitate its use, exchange, and reliability are important components of agriculture and agriculture-related natural resources management for hundreds of years [5]. Accurate and timely information allows farmers to survive and even benefit from these changes. Agricultural extension, which depends to an outsized extent on information exchange between and among farmers on the one hand, and a broad range of other actors on the opposite, has been recognized together area during which ICTs can have a very significant impact. Here, an strive has been made to analyze the relationship among the profile of ICT tools using farmers and utilization of ICT tools.

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### MATERIALS AND METHODS

The present study became administered in Anantapur district of Andhra Pradesh during the year 2017-18. An Ex-post facto research design was used in this present investigation. The Anantapur district was selected purposively for the study because of large area (19.13 lakh ha) in Andhra Pradesh. Out of 5 divisions, three divisions were selected randomly. Three Mandals from each division were selected by using random sampling technique. From each of the chosen Mandal, four villages were selected following random sampling procedure. Thirty-four farmers from Gandlapenta Mandal, forty-seven farmers from Bukkarayasamudram Mandal and thirty-nine farmers from Beluguppa Mandal were selected from the villages by proportionate random sampling method. Thus, a complete of 120 farmers were selected for the study. Data was gathered through a well-structured interview schedule which was developed keeping in sight of the objective of the study. The gathered data were coded, classified and tabulated. The statistical tools consisting of Frequency, Percentage, Mean and Standard Deviation were used for significant interpretation of findings and for drawing conclusions. Statistical Package for Social Sciences (SPSS) was used for data analysis.

#### *Pearson's correlation coefficient (r)*

The Pearson's coefficient of correlation test was used to check the relationship between the scores of profile characteristics and the extent of utilization of ICTs by the farmers. It measures the degree of relationship between the two sets of variables.

#### *Multiple linear regression analysis*

Analysis was used to study the effect of independent variables on dependent variables. The following multiple linear regression equation was fitted to the data having 15 parameters.

$$Y = a + b_1 X_1 + b_2 X_2 + \dots + b_{15} X_{15}$$

Where, Y= Dependent variable

X<sub>1</sub> to X<sub>15</sub> = Independent variable

a = intercept or constant

b<sub>i</sub>'s = partial regression coefficients.

b<sub>i</sub> = b<sub>1</sub>, b<sub>2</sub>, ..... b<sub>15</sub>

## RESULTS AND DISCUSSION

Profile characteristics of the farmers showed that 67.50 per cent and 18.33 per cent respondents had been belonged to the age group 35-58 and above 58 years respectively (Table 1). Only 14.17 per cent respondents were beneath 35 years. Many researchers have the opinion that age performs a important role in utilization of ICT tools. The likely reason could be due to of the very fact that migration of young age group to towns and cities for education and employment. It's also been decided out that 35 per cent respondents were high school, 17.51 per cent were illiterate, 14.17 per cent were primary and middle school, 13.33 per cent were intermediate, 4.06 per cent and 1.66 per cent were with graduation and functionally literate respectively. Educated people expected to possess more knowledge on usage of ICT tools. The data also depicted that 40 per cent and 28.34 per cent of respondents had landholdings 1-2 ha and 2-4 ha respectively, 1.17 per cent, 13.33 per cent and 4.16 per cent respondents had landholding with 4-10 ha, under 1 ha and above 10 ha respectively. More landholdings means more potential to extend productivity and efficiency to utilize more number of technologies.

On other facet 31.33 per cent of respondents had 20-30 years of experience in farming, 28.33 per cent had 30-40 years' experience, 20.84 per cent, 13.34 per cent and 5.83 per cent of respondents had greater than 40 years, 10-20 years and fewer than 10 years of farming experience respectively. Younger group weren't selected farming as a profession. It also revealed that 47.50 per cent of the respondents had 14-21 years of experience in usage of ICT tools, 30 per cent, 16.67 per cent and 5.83 per cent respondents had 7-14, above 21 and fewer than 7 years of experience respectively. More number of experience years having that better utilization of tools. 58.34 per cent respondents had medium level of possession of ICT tools, 22.50 per cent and 19.6 per cent had low and high level of possession of ICT tools. Most farmers with high income that helps them to extend the purchasing ability of latest ICT tools like television, android mobile, laptop, memory cards, pen drive etc.

Consistent with data, 45 per cent respondents' incomes ranged from 53,000-86,000. Similarly, 31.66 per cent and 23.34 per cent respondents have 86,000 - 1,19,000 and 20,000-53,000 respectively. The income of respondents that affects their attitude towards acquisition of agricultural data and increases the usage. As depicted within the (Table 1), 44.16 per cent of the respondents gone through 1-2 trainings, 25.83 per cent, 16.67 per cent and 13.34 per cent of the respondents gone through 3-4, more than 4 and no trainings respectively. Extension personnel has got to provide trainings to the farmers for higher usage of ICT tools for getting improved agricultural technologies. From the data 57.50 per cent of the respondents had medium level of social participation followed by high 21.67 per cent and low 20.83 per cent.

The results from the (Table 1) depicted that 70.83 per cent of the farmers had medium level of extension contact, 16.67 per cent and 12.50 per cent had high and low level of extension contact respectively. Most of the farmers in tuned with the extension worker for getting leading edge agricultural information. The data indicated that 59.17 per cent of the respondents had medium level of innovativeness followed by high 27.50 per cent and low 13.33 per cent. Most of the farmers are pretty earlier in adopting new innovations than others. Most (67.50%) of the farmers had medium level of economic orientation followed by high (19.17%) and low (13.33%). Farmers are accomplished by improvement in their education level, financial incentives from co-operatives and banks.

From the (Table 1) data revealed that greater than half (53.33%) of the respondents had medium level of risk orientation, followed by those with low (27.50%) and rest (19.17%) had high levels of risk orientation. Farmers might have avoided them from taking tons of risk in farming. Majority (67.50%) of the farmers had medium level of scientific orientation, followed by high (20.00%) and rest (12.50%) had low level of scientific orientation. Application of recent farm thoughts during a scientific way for increasing the productivity. Majority (65.00%) of the farmers had medium level of cosmopolitaness, followed by high (18.34%) and rest (16.66%) had low level of cosmopolitaness. More farmers go to nearest towns and cities more are going to be exposure to ICT tools.

#### *Coefficient of correlation among profile of ICT usage farmers and extent of utilization of ICTs*

In order to look at the nature of relationship among the profile characteristics of farmers and their extent of utilization

of ICTs, coefficient of correlation had been computed and therefore the values are presented in (Table 2).

Table 1 Profile characteristics of ICT usage farmers

Independent variables	Category	Respondents (n=120)	
		Frequency	Percentage
Age	Young (Below 35years)	17	14.17
	Middle (35 to 58years)	81	67.50
	Old age (Above 58 years)	22	18.33
Education	Illiterate	21	17.51
	Functionally literate	02	01.66
	Primary School (1 <sup>st</sup> - 5 <sup>th</sup> )	17	14.17
	Middle School (5 <sup>th</sup> – 7 <sup>th</sup> )	17	14.17
	High School (7 <sup>th</sup> – 10 <sup>th</sup> )	42	35.00
	Intermediate	16	13.33
	Graduation	05	04.06
	Post-Graduation	0	0.00
Land holding	Marginal (Below 1 ha)	16	13.33
	Small (1 – 2 ha)	48	40.00
	Semi Medium (2 – 4 ha)	34	28.34
	Medium (4 – 10 ha)	17	14.17
	Large (Above 10 ha)	05	04.16
Experience in farming	Upto 10 years	07	05.83
	10 – 20 years	16	13.34
	20 – 30 years	38	31.66
	30 – 40 years	34	28.33
	40 years above	25	20.84
Experience in usage of ICT tools	Upto 7 years	07	05.83
	7 – 14 years	36	30.00
	14 – 21 years	57	47.50
	21 years above	20	16.67
Possession of ICT tools	Low (1.08)	27	22.50
	Medium (1.08-6.07)	70	58.34
	High (6.07)	23	19.16
Annual Income	Low (Rs. 20,000 – Rs. 53,000)	28	23.34
	Medium (Rs. 53,000 – Rs. 86,000)	54	45.00
	High (Rs. 86,000 – Rs. 1,19,000)	38	31.66
Training undergone	No trainings	16	13.34
	1 – 2 trainings	53	44.16
	3 – 4 trainings	31	25.83
	More than 4 trainings	20	16.67
Social participation	Low (12.18)	25	20.83
	Medium (12.18-22.40)	69	57.50
	High (22.40)	26	21.67
Extension contact	Low (12.27)	15	12.50
	Medium (12.27-23.47)	85	70.83
	High (23.47)	20	16.67
Innovativeness	Low (18.72)	16	13.33
	Medium (18.72-24.47)	71	59.17
	High (24.47)	33	27.50
Economic orientation	Low (13.51)	16	13.33
	Medium (13.51-20.91)	81	67.50
	High (20.91)	23	19.17
Risk orientation	Low (10.15)	33	27.50
	Medium (10.15-12.60)	64	53.33
	High (12.60)	23	19.17
Scientific Orientation	Low (16.73)	15	12.50
	Medium (16.73-25.51)	81	67.50
	High (25.51)	24	20.00
Cosmopoliteness	Low (4.18)	20	16.66
	Medium (4.18- 16.50)	78	65.00
	High (16.50)	22	18.34

From (Table 2), it's determined that the computed coefficient of correlation  $r$  values of education, land holding, experience in usage of ICT tools, possession of ICT tools,

annual income, training undergone, extension contact, innovativeness, economic orientation, scientific orientation and cosmopoliteness were positively and significantly

correlated with the usage of ICT tools. Whereas, computed 'r' value of age had been negatively significant, 'r' value of experience in farming and risk orientation were negatively non-significant and 'r' value of social participation were positively non-significant with the utilization of ICT tools.

#### *Age vs extent of utilization of ICT tools*

Results from (Table 2) suggests that there has been a negative significant relationship between age and extent of utilization of ICT tools. It's probably due to of that more the persons age the stronger inclination to his traditional notion of things. Therefore, harder it's to influence and also change his mindset towards modern technology. Similarly, younger ones will accept the changes and plan to adopt the new technologies in ICTs [6].

#### *Education vs extent of utilization of ICT tools*

From (Table 2) that there has been a positive significant relationship between education and extent of utilization of ICT tools. Education exposes farmers to unique communication media. Acquiring of formal education also allows to interpret information during a rational manner leading to realistic decision making. The use of ICTs requires good enough quantity of ability to work, which may be obtained through education [7].

#### *Land holding vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between land holding and extent of utilization of ICT tools. It implied that farmers access ICT tools is related to what proportion of income they may have and land holding might leave great possibility to earn more income to use for such purchases of ICT tools [8].

#### *Experience in farming vs extent of utilization of ICT tools*

Results from the (Table 2) that there was a negative non-significant relationship between experience in farming and extent of utilization of ICT tools. It is because of that farming may be a hereditary occupation and more number of the farmers begin farming at a really younger age. Hence more the age of a farmer, more experience he can acquire in farming. As, it had been revealed that age was negatively related to usage of ICTs, the negative relation between farming experience with utilization of ICT tools [6].

#### *Experience in usage of ICT tools vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between experience in usage of ICT tools usage and extent of utilization of ICT tools. Farmer having greater ownership of ICT tools have the experience in usage of ICT tools. More the experience in ICT tools usage more the utilization.

#### *Possession of ICT tools vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between possession of ICT tools and extent of utilization of ICT tools. It is because of that farmer had more number of ICT tools that he can use those tools frequently for various purposes so more the possession of ICT tools more the utilization [9].

#### *Annual income vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between annual income and extent of utilization of ICT tools. The cause that farmers having medium annual income had better purchasing capacity of ICTs for getting information regarding farming [10].

#### *Training undergone Vs Extent of Utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between training undergone and extent of utilization of ICT tools. Fact are often that training will impart know-how and capabilities to the farmer and it'll result in higher usage of ICT tools [11].

#### *Social participation vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and non-significant relationship between social participation and extent of utilization of ICT tools. The rationale is that the farmers having high degree of orientation to outside the social organization, extent of social participation and favourable attitude toward ICT tools also inspired the farmer to access and make use of the ICTs [12].

#### *Extension contact vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between extension contact and extent of utilization of ICT tools. It's probably because of farmers having high extension contact with the scientists, agricultural officials and NGOs gather more knowledge about ICT tools leads to higher utilization of ICT tools [13].

#### *Innovativeness vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between innovativeness and extent of utilization of ICT tools. Innovativeness is that the individual ability to adopt new technology. So, because the farmer with this tract acquire more knowledge from diverse sources of information and utilize the ICT tools [14].

#### *Economic orientation vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between economic orientation and extent of utilization of ICT tools. Farmers having medium level of annual income were inclined to require maximum profits by the usage of latest ICT tools [15].

#### *Risk orientation vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a negative and non-significant relationship between risk orientation and extent of utilization of ICT tools. The cause is perhaps due to more risk with ICT tools resulting in less utilization of ICT tools.

#### *Scientific orientation vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between scientific orientation and extent of utilization of ICT tools. Normally, farmers with more scientific orientation might want to form use of more number of ICT tools [16].

#### *Cosmopolitaness vs extent of utilization of ICT tools*

It was evident from the (Table 2) that there was a positive and significant relationship between cosmopolitaness and extent of utilization of ICT tools. It'd be because of that cosmopolite farmer were introduced into surroundings of

broader views wherein there could also be a better scope for exchange of latest thoughts and facts. Further, the people that

interact with the people outside their system are probable to urge information about new ICT tools [17].

Table 2 Relationship with the profile characteristics with extent of utilization of ICTs

Independent variables	'r' value
Age	-0.494**
Education	0.392**
Land holding	0.437**
Experience in farming	-0.084 NS
Experience in usage of ICT tools	0.222*
Possession of ICT tools	0.591**
Annual Income	0.182*
Training undergone	0.193*
Social Participation	0.067 NS
Extension Contact	0.188*
Innovativeness	0.199*
Economic Orientation	0.200*
Risk Orientation	-0.143 NS
Scientific Orientation	0.208*
Cosmopolitaness	0.750**

\*\*0.01% level of significant

\*0.05% level of significant

#### Combined impact of all independent variables on extent of ICT utilization

To decide the combined impact of all the independent variables in explaining the extent of ICT utilization, multiple

linear regression analysis was performed. The computed coefficient of determination ( $R^2$ ) value and partial regression coefficient (b) values with their corresponding t-values were presented in (Table 3).

Table 3 Multiple linear regression analysis of independent variables with Extent of ICT use

Independent variables	Regression coefficient	Standard error	't' value
Age	-0.562	0.168	-6.643*
Education	0.028	0.883	0.435 NS
Land holding	0.163	1.277	2.979*
Experience in farming	0.422	0.156	5.650*
Experience in usage of ICT tools	0.043	0.245	0.795 NS
Possession of ICT tools	0.191	0.820	2.627*
Annual income	0.016	0.754	0.327 NS
Training undergone	-0.097	1.650	-1.811 NS
Social participation	0.049	0.233	0.998 NS
Extension contact	0.013	0.234	0.239 NS
Innovativeness	0.077	0.429	1.489 NS
Economic orientation	-0.013	0.340	-0.253 NS
Risk orientation	-0.072	0.954	-1.476 NS
Scientific orientation	0.067	0.285	1.292 NS
Cosmopolitaness	0.412	0.262	6.140*

$R^2=0.783$

\*0.05% Level of Significant

NS- Non-Significant

It was determined from the (Table 3) that the  $R^2$  value of 15 independent variables with the extent of ICT usage by the farmers is 0.783. Hence, it's ready to be inferred that independent variables put together contributed 78.30 per cent of the total variation within the extent of ICT utilization by the farmers, remaining 21.70 per cent was due to extraneous factors. Hence, it's ready to be stated that the profile characteristics selected to a large extent explained the variation in utilization of ICT tools by the farmers [18]. The regression coefficient given in (Table 3) similarly revealed that the independent variables namely age, land holding, experience in farming, possession of ICT tools and cosmopolitaness were observed to be positively significantly contributed to the foremost of the variation in utilization of ICT tools by the farmers.

## CONCLUSIONS

Information Communication Technology tools has the capability to lessen the gap by giving right information at right time. Application of ICT in agriculture yields higher productivity. Effective usage of ICT tools by the farmers will unfold the appropriate information amongst themselves. The study confirmed that age was the main factor for utilization of ICT tools, old age people has low utilization due to the fact they stick directly to the conventional methods. Another factor was experience of usage in ICT tools for information on agricultural innovations. By this it is advocated that government need to offer more vocational training on ICTs usage. It might serve the farmers to get more innovative information in agriculture.

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