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Utilization pattern of ICTS by the farmers in Andhra Pradesh

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Abstract
The utilization pattern of ICTs by the farmers was studied in the Andhra Pradesh state of India. A total of 240 farmers were randomly selected for the study. The results showed that majority of the farmers owned mobile phones as well as television and radio. The most frequently used ICT was mobile phone. Mobile phones were widely used by the farmers for social communication, contacting middle men for the marketing of produce and contacting experts on real time basis for getting agricultural advisories. Information services on availability of inputs, quality of inputs, and pest and disease management of crops were also used by the farmers through ICTs. Regarding purpose of utilization, majority of farmers used ICTs for weather information followed by market information and price trend, government schemes and programmes and latest package of practices.

Keywords: ICT, utilization pattern, mobile phone, farmers, weather information

Introduction
The farmers as producers of food must have an enabling environment for access to know-how and do-how for realizing the full potential of modern agricultural technology and should be empowered in taking initiatives and decisions which will only help in shaping the future of farmer's economy. In the present scenario of Indian agriculture, the public extension cannot possibly provide additional qualified manpower to adequately address the complex demand of the farmers by reaching the millions of farmers. Farmer's needs are much more diversified and the knowledge required to address them is beyond the capacity of the grass root level extension functionaries. These weaknesses or draw backs focus on the use of alternative means of value added and demand-driven information to farming community. The need of the hour is the use of modern and quick communication channels like ICTs to disseminate and create awareness about latest farm technologies among rural mass. There are umpteen ways in which ICTs can be useful to small and marginal farmers in India. The effective awareness campaign on ICT use, involvement of local self-governments, value added information and combination of services provision proved as strategic factors behind success of ICT initiatives. The present study aims to evaluate the utilization pattern of different ICT tools by the farmers in the Andhra Pradesh state of India.

Methodology
In the present study Ex-post facto research design was followed. Ex-post facto research is a systematic empirical enquiry in which the scientists do not have control of influencing independent variables, because manifestation has already occurred.
The Andhra Pradesh state was chosen as the locale of the study, since the researcher belongs to the state and was familiar with the local language and culture. All the three regions in the newly formed state of Andhra Pradesh *viz*., Rayalaseema, Coastal Andhra and North Coastal region were included for the present study.
One district from each region was selected by following lottery method of simple random sampling procedure. The names of the selected districts were Chittoor from Rayalaseema region, Guntur from Coastal region and Visakapatnam from North Coastal region.
From each of the selected district, two mandals were purposively selected based on the highest are under cultivation. The sample constituted to a total of six mandals. From each of the selected mandal, four villages were selected by following lottery method of simple random sampling procedure.

The sample constituted to a total of twenty four villages. From each of the selected village, ten farmers were selected by following lottery method of simple random sampling procedure. The sample constituted to a total of 240 respondents.

Utilization pattern was operationalized as the degree of use of ICTs in acquiring latest information on different areas related to agriculture. The variable was measured using schedule developed for the study, which contain two components. The total scores were arrived at by adding the scores obtained on both the components.

Extent of utilization

Extent of utilization was studied on a five point continuum *viz*., daily, weekly, fortnightly, occasionally and never with scores 4, 3, 2, 1 and 0respectively for each of the thirteen ICTs. The frequency and percentage for each of the categories were calculated. The maximum and minimum scores were in the range of 52 and 0.

Area of information utilized

The various dimensions regarding area of information of ICTs used by the respondents for agriculture practices. It was studied on three point continuum *viz*., always, sometimes and never with scores 2, 1 and 0 respectively. The maximum and minimum scores were in the range of 28 and 0.

Results and Discussion

Utilization pattern of ICTS by the farmers

a) Extent of utilization of ICTs

Table 1 depicted that the extent or frequency of use of ICTs by the individual respondents for agricultural practices. The results showed that extent of utilization of ICTs priority wise were; mobile phone (78.00%) were "daily" used followed by television (70.00%), radio (65.00%), internet (49.00%), WhatsApp (45.00%), Facebook (16.00%), You Tube (14.00%).All the above mentioned ICTs were quit common now a day's and are the common needs of everyone in today's era.

The results showed "weekly "used tools used by respondents in the order of priority wise were WhatsApp (12.00%) followed by television (11.00%), radio (10.00%), mobile phones (9.00%), You Tube (8.00%), internet (6.00%), face book (5.00%) and video conference and Kisan Call Centre (KCC) (2%) respectively.

"Fortnightly - used tools used by respondents in order to priority wise were video conference (26.00%), mobile phone (6.00%) television, laptop and internet (5.00%), WhatsApp (4.00%), e-mail (3.00%), You Tube (2.00%), Facebook (1.00%)

"Occasionally" used tools by respondents in order to priority wise were Kisan call centre (11.00%), video conferencing (10.00%), internet (9.00%), e-books (6.00%), mobile phone, You Tube and CD/DVD (4.00%), Television and laptop (3.00%), radio, e-mail and web portal (2.00%), WhatsApp and Facebook (1.00%).

Further, the data revealed that, some of the tools not at all used i.e., "Never" used by respondents are arranged as priority wise were web portal (98.00%), CD/DVD (96.00%), e-mail (95.00%), laptop (92.00%), e-books (91.00%), Facebook (77.00%), KCC (75.00%), You Tube (72.00%), video conference (62.00%), WhatsApp (38.00%), radio (35.00%), internet (15.00%), television (11.00%), mobile phone (3.00%) respectively this may be due to poor internet connectivity or lack of knowledge to access ICTs.

On overall, mobile phone was regarded as the most frequently used ICT tool, among the farmers. This indicated that the increase in the usage of mobile phones is increasing at an alarming rate even in the state. This is due to the reason that at present mobile phones are easily affordable and could be used by even illiterate farmers. The usage trend in mobile phones also indicated that it can offer huge scope in the future if appropriately used for the purpose of agriculture and other rural development purposes. Next to mobile phones, television was also used very frequently by the farmers. It was also reported that the use of radio is lower as compared to mobile phones and television. Few farmers frequently use Internet, WhatsApp, Facebook and You Tube because these applications are available in their mobile phones and these were mostly by the farmers who were young and educated. Kisan Call Centres were rarely used by the farmers because they usually view agricultural professionals as big officers and do not feel comfortable talking to them on phones. Majority of the respondents never use web portals, CD/DVD, video conferencing, e-mails and laptops due to poor connectivity available at villages, lack of guidance and skills in using ICTs. Syiem *et al.* (2015) [1] research findings pointed that majority of the farmers owned mobile phones as well as radio and television. The most frequently used ICT was mobile phone. Mobile phones are were used by the farmers for social communication, contacting middle men for marketing of produce and contacting experts on real time basis for getting agricultural advisories.

Table 1: Extent of utilization of ICTS by the farmers

S. No.	ICTs	Daily		Weekly		Fortnight		Occasionally		Never	
		f	%	f	%	f	%	f	%	f	%
1	Radio	156	65.00	14	6.00	12	5.00	22	9.00	36	15.00
2	Television	168	70.00	26	11.00	12	5.00	7	3.00	26	11.00
3	Mobile phones	187	78.00	22	9.00	14	6.00	10	4.00	7	3.00
4	Laptop/personal computer	0	0.00	0	0.00	12	5.00	7	3.00	221	92.00
5	Internet	118	49.00	24	10.00	10	4.00	5	2	84	35
6	WhatsApp	108	45.00	29	12.00	10	4.00	2	1.00	91	38.00
7	Facebook	38	16.00	12	5.00	2	1.00	2	1.00	185	77.00
8	You Tube	37	14.00	19	8.00	5	2.00	10	4.00	173	72.00
9	Videoconference	0	0.00	5	2.00	62	26.00	24	10.00	149	62.00
10	e-mail	0	0.00	0	0.00	7	3.00	5	2.00	228	95.00
11	CD/DVD	0	0.00	0	0.00	0	0.00	10	4.00	230	96.00
12	e-books/e-magazine	0	0.00	0	0.00	7	3.00	14	6.00	218	91.00
13	Kisan Call Centre (KCC)	0	0.00	5	2.00	29	12.00	26	11.00	180	75.00
14	Web portal	0	0.00	0	0.00	0	0.00	5	2.00	235	98.00

b) Utilization pattern of ICTs for specific information

Table 2: Utilization pattern of ICTs for specific information by the farmers (n = 240)

Area of information	Always		Sometimes		Never		Mean score	Rank
	f	%	f	%	f	%		
Quality standards for export	53	22.00	79	33.00	108	45.00	0.77	IX
Latest package of practices	96	40.00	101	42.00	43	18.00	1.22	IV
Water management	60	25.00	96	40.00	84	35.00	0.9	VII
Disease and pest management	77	32.00	91	38.00	72	30.00	1.02	V
Commercial agriculture	48	20.00	86	36.00	106	44.00	0.75	X
Post-harvest technology and value addition	43	18.00	77	34.00	110	46.00	0.68	XII
Market information and price trends	132	55.00	72	30.00	36	15.00	1.4	II
Dairy and poultry management	60	25.00	77	32.00	103	43.00	0.82	VIII
Facilitation of land records	36	15.00	67	28.00	137	57.00	0.58	XIII
Crop insurance	46	19.00	79	33.00	115	48.00	0.71	XI
Weather information	137	57.00	82	34.00	21	9.00	1.41	I
Government schemes and programmes	108	45.00	84	35.00	48	20.00	1.28	III
Integrated nutrient management	77	32.00	72	30.00	91	38.00	0.94	VI

The presented data in Table 2. Depicted the respondents used ICTs for information on different areas. Figures in the table revealed that majority of farmers used ICTs for weather information (1.41) followed by market information and price trends (1.40), government schemes and programmes (1.22), latest package of practices (1.28), disease/pest management (1.02), integrated nutrient management (0.94), water management (0.90), dairy and poultry management (0.82), quality standards for export (0.77), commercial agriculture (0.75), crop insurance (0.71), post-harvest technology (0.68), facilitation of land records (0.58), was ranked as I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, according to the mean score respectively.

Weather information
Weather information was ranked first because majority of the farmers always use ICTs for weather information because most of the cultivated area is under rainfed and depends on the monsoon in Andhra Pradesh so the farmers require weather information to reduce the risk of crop failure. There is a possibility of surprise rain, when different crops are to be harvested, this is frequently happening in the state in many areas leading to total loss of the crop by the farmers, hence farmers were worried about immediate weather parameters. Timely weather forecast would help farmers in planning their farm operations, right from sowing to harvesting.

Market information and price trends
Market information and price trends was ranked second because the fact that this information provide an opportunity to choose a market on the basis of prevailing price and sell their produce in their chosen market and earn more returns. Because of the recent developments in the e-marketing, farmers were oriented towards ICTs in this regard, to avoid selling to the middlemen who procure their produce at throwaway prices.

Government schemes and programmes
Government schemes and programmes was ranked third because farmers are interested in knowing about the government policies because with this information they will be getting assistance from the government authorities and can avail subsidies and benefits provided by the government. Of the late the State Government of Andhra Pradesh has launched many apps, agencies and programmes related to the welfare of the farmers, so farmers were interested to know about the latest information with regard to the change in the policies, concerning to their crop cultivation and marketing of produce.

Latest package of practices of crops
Information on latest package of practices of crops was ranked fourth because this information provide farmers with the easier and newest technology and makes them updated with the benefits of the current practices of cultivation, leading to crop production, fertilizer management, plant protection and post-harvest technologies.

Disease and pest management
This was ranked fifth because the crops grown in this state are more prone to pests and diseases, frequent attack of pests and diseases demands this information. This will help in better management and reduce the input expenditure. It will help in taking precautionary measures and avoids huge losses by having information about pest surveillance and forecasting.

Integrated nutrient management
Integrated Nutrient management was ranked sixth because increased area under nutrient depletion, due to indiscriminate use of fertilizers, pesticides, unbalanced fertilizer application and stagnated yields of the crops. Information services on nutrient management would help in increasing nutrient use efficiency resulting in increased productivity and reduction in cost of cultivation.

Water management
Water management was ranked seventh. Farmers who are interested in hi-tech farming and using of micro irrigation methods felt the need for knowledge regarding water management. Water management will increase water use efficiency resulting in increased productivity. This information was given more importance as the ill-distribution of rainfall and frequent droughts have become major hurdles to the farmers to get good yields.

Dairy and poultry management
Information on Dairy and poultry management was ranked eighth because, in addition to farming, dairy and poultry will improve their socio economic condition. Dairy and poultry are the enterprises supportive to the farmers under drought conditions. In some of the districts dairy is coupled with agriculture to have alternate and assured income to the farmers in case of crop failure.

Quality standards of produce for export
It was ranked ninth because knowledge about this information area will help farmers in exporting their produce to higher demand areas thereby getting more income.

Commercial agriculture
Information on commercial agriculture was ranked tenth. Some of the very important crops like rice, groundnut and vegetables have high commercial value. Increased knowledge in production activities for these crops will further enhance their horizons in getting good yields and thereby income. Henceforth farmers are interested in knowing information about the high income generating crops.

Crop insurance
ICTs provide the detailed information about crop insurance schemes, the nature of damage and nature of compensation, premium to be paid etc. Farmers were aware of some of the crop insurance programmes from the state and central governments. It was ranked eleventh.

Post-harvest technology and value addition
It was ranked twelfth because majority of the farmers are small and marginal. Due to lack of awareness on post-harvest technologies and value addition, farmers are now becoming aware that simple cultivation of the crops and harvesting of crops will not be much help to get good income after taking many efforts and baring risks, they are thinking that value addition including processing and grading of the produce will make them to get much more income than usual.

Facilitation of land records
Facilitation of land records was ranked thirteenth because most of the farmers possess land records i.e., pattadhar pass books. The State Government has taken up many measures in developing apps and websites concerning to the land particulars of the famers which were available even my me-seva Kendras.

Overall utilization pattern of ICTs by the farmers
An overview of Table 3. Makes it clear that 51 percent of farmers had medium utilization pattern followed by low (32.50%) and high (16.50%) utilization pattern.

Table 3: Distribution of respondents according to their utilization pattern (n = 240)

S. No.	Category	Frequency	Percentage
1	Low utilization pattern	78	32.50
2	Medium utilization pattern	122	51.00
3	High utilization pattern	40	16.50
Total		240	100.00
Mean = 5.125		SD = 3.013	

The possible reason might be most of the farmers used the ICTs regularly or in a fortnight. The moderate use of ICTs existed because farmers use the ICTs when they find the need. Much use was noticed during the initial period of establishment and the same had been diminished overtime because of the static nature of information and the farmers do not dedicate much of their time to use ICTs. But the usage of mobile phones had been ever increasing as it is a cost effective versatile instrument and can be used without any expertise. The use of ICTs can be improved among farmers provided the information is updated and need based. Further, many farmers expressed that information can be obtained easily by click of a mouse for simple information, rather than spending time for the extension workers. The result was in accordance with Swaroop (2016) [2] and Vivek (2017) [3].

Conclusion
The study clearly indicated that majority of the farmers were using mobile, television and radio. The use of remaining ICTs *viz*., internet, kiosk and call centres should be increased by establishing more number of kiosks and information centres at village level. So, the extent of use of ICTs can be increased by increasing the awareness among the farmers. Farmers should be trained on using mobile, internet and kiosks effectively. Majority of farmers had medium level of utilization due to multiple reasons. Establishment of different ICTs at each panchayat office and provision of proper training will promote their ICT utilization to higher level.

References
1. Syiem R, Raj S. Access and Usage of ICTs for Agriculture and Rural Development by the Tribal Farmers in Meghalaya State of North-East India. Journal of Agricultural Informatics 2015;6(3):24-41.
2. Swaroop BJ. Accessibility and extent of utilisation of information and communication technologies in adoption of improved agricultural practices by farmers in Visakapatnam district of Andhra Pradesh. Journal of Global Communication 2016;9:152-157.
3. Vivek JK. Utilisation of Information and Communication Technologies (ICTs) by the pea growers of Patan block of Jabalpur district of Madhya Pradesh. M.Sc. (Ag) Thesis. Jawaharlal Nehru Vishwa Vidyalaya, Jabalpur, India 2017.
4. Williams EE, Agbo IS. Evaluation of the Use of ICT in Agricultural Technology Delivery to Farmers in Ebonyi State, Nigeria. Journal of Information Engineering and Applications 2013;3(10):18-26.
5. Yadav SB, Khan MI, Kumar M. Utilization pattern of different Sources and Channels of Agriculture Information used by the Fenugreek Growers, Indian Research Journal of Extension Education 2011;11(1):44-49.