



A Study on Awareness of the Farmers About Various ICT Tools / ICT Enabled Services for Accelerating Agriculture Production in Tamil Nadu

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ABSTRACT

To know the real effect of ICT enabled extension services among the stakeholders, the study was conducted with objective to find out the Farmers' awareness about the different ICT enabled extension services in Tamil Nadu. The study was conducted at five important agro climatic zones of Tamil Nadu and covered eight districts. By employing the purposive sampling method, 500 farmers were selected for the study programme. It was found that the farmers significantly aware about the extension information through SMS / Mobile call, Kisan Call, agri clinics, agri websites and crop doctor. All the identified independent variables had significant and positive relationship with the farmers awareness about the various ICT tools

KEYWORDS : Agriculture, Information and Communication Technology (ICT), ICT tools, Extension services, Farmers' awareness

Introduction

The role of ICTs as an instrument for progress and development has been widely acknowledged in this 'Global Information age', and it has been observed that people with all walks of life are being impacted by the IT sector directly or indirectly. Among other ICTs, mobile telephony has emerged as the technology of choice of the majority of the urban and even the rural masses (Ansari and Pandey, 2013). The possession of mobile phones particularly has become a necessity in the contemporary society irrespective of age, status, profession, income groups or place of residence. As such, mobile phones have been regarded as the widely accessed tool among the farmers for communication and also accessing agriculture-related information particularly for the marketing of produce (Chhachar et al., 2014). ICTs, therefore, offer opportunities to reach more people through easy access to local or global information and knowledge. Hence, with the new emerging paradigm of agricultural development, old ways of delivering important services to citizens are being challenged; traditional societies are also being transformed into knowledge societies all over the world which makes people living in the villages think and do things differently (Meera et al., 2004). For instance, Jabir (2011) reported that ICT-based information delivery has helped the livestock farmers of Uttar Pradesh in India in making significantly better quality decisions on various livestock practices as compared to ICT non-users. Further, the application of ICT among farmers of Madhya Pradesh, Uttar Pradesh and Tamil Nadu of India reported that information acquisition and facilitating transactions in input and output markets by ICT-based initiatives have also helped farmers in reducing transaction cost (Adhiguru and Devi, 2012).

Agricultural production system has been evolving into a complex business system requiring the accumulation and integration of knowledge and information from many diverse sources. In order to remain competitive, the modern farmer often relies on agricultural specialists and advisors to get information for decision making. Unfortunately assistance of the agricultural expert is not always available when the farmer needs it due to short strength of extension workers matching with ratio of farmers. In order to alleviate this problem, number of ICT tools or ICT enabled extension services have been introduced in Tamil Nadu to provide need based agro advisory services in time. To know the real effect of ICT enabled extension services among the stakeholders, the study was conducted with objective to find out the Farmers' awareness about the different ICT enabled extension services in Tamil Nadu.

Methodology:

The study was conducted in Tamil Nadu covering all major agro climatic zones except hilly zone. Tamil Nadu State has been classified into seven distinct agro-climatic zones based on rainfall distribution, irrigation pattern, soil characteristics, cropping pattern and other physical, ecological and social characteristics including administrative divisions. Out of these seven zones, five major zones were selected for the study. Eight districts covering major five zone

of Tamil Nadu were selected purposively to give fair to ensure a fair representation of the State. By employing purposive sampling method, 500 farmers were selected from eight districts. An *Ex-post facto* research design was adopted for the study.

Data were collected through well structured pre-tested interview schedule. Awareness about the ICT tools or ICT enabled extension services is operationalised as the degree to which an individual respondent is aware about ICTs tools or its applications for the purpose of agriculture and rural development. A scoring of 2 and 1 was given to the respondents aware ICTs and not aware ICTs respectively. The responses from these interview schedules were tabulated and analyzed using suitable statistical tests. The appropriate statistical tools namely percentage analysis, correlation coefficient and t test were employed for drawing meaningful inferences.

Result and Discussion:

Farmers' Awareness About the ICT tools or ICT enabled Extension Services in Tamil Nadu

Table 01. Distribution of the respondents according to their awareness about the ICT tools or ICT enabled extension service in Tamil Nadu

The awareness about various ICT tools studied among the farming community especially whether they aware about the present ICT enabled services with help of well structured interview schedule and the response of the same is tabulated in the Table 01.

Table 01. Awareness of farmers on various ICT based Extension tools

n=500

Awareness on ICT based Extension tools	Yes		No		Total
	No.	%	No.	%	
Aware about extension information through (SMS/Oral) cell phone?	464	92.80	36	7.20	7.20
Aware about extension information through Kisan Call Centre?	365	73.00	135	27.00	27.00
Aware about extension information through Agri. Kiosk?	200	40.00	300	60.00	60.00
Aware about extension advice through Agri-clinic ?	276	55.20	224	44.80	44.80
Aware about extension advice through Crop Doctor of TNAU?	220	44.00	280	56.00	56.00
Aware about extension information through Agricultural websites?	250	50.00	250	50.00	50.00
Aware about extension information through Agricultural e-journals?	193	38.60	307	61.40	61.40

The data in the Table 01, revealed that the majority of the farmers (92.80 %) were aware about extension information through SMS/ Oral cell phone. This may be due to majority of the farmers owned the mobile phone or could be able to access the mobile phone for common service. Moreover, the department of agriculture is also providing the push and pull type of daily agriculture related message through mobile phone especially on market, weather and crop cultivation information for the benefit of the farmers. Hence, the majority of the farmers aware about the extension information through SMS or Oral cell phone. This is in line with the findings of Balasubramniam, (2011) who has found out that majority of respondents say 71.7 per cent possessed medium level of utilization of mobile phone information technology tools followed by high (15.1 per cent) and low (13.4 per cent) levels. He has also found out that respondents had frequent utilization of basic mobile phone information technology tools like voice calls, FM radio, SMS etc., using mobile telephony.

It was observed that 73.00 percent of the farmers were aware about extension information through kisan call centre. Kisan call centre is providing both general and customized agro advisory services through phone or mobile to the needy farmers. The advertisement for the Kisan call centre is frequently given in National TV as well as local TV broadcasting channel. Farmers also interested to get agro advisory services through kisan call centre especially for pest and disease management, nutrient management and market related issues. Hence nearly three-fourth of the farmers aware about extension information through kisan call centre.

From the above Table 01, revealed that 40 per cent of the farmers were aware about the extension information through agricultural kiosk. Agriculture kiosk is established only in selected blocks of agro service centre. Moreover, the farmers preferred to get extension information through SMS / Oral through mobile and Kisan Call Centre for matter of accessibility and easiness. Hence the above result was reported in the study.

A little more than half of the farmers (55.20%) were aware about extension advice through Agri – Clinic. This may be due to that the existence of agri clinics in Primary Cooperative Agriculture Society where the farmers used to visit frequently for loan and purchase of fertilizers.

Awareness about extension advice through Crop Doctor of TNAU was reported by 44.00 per cent of the farmers in the study area. Almost all the KVKs and research stations in the Tamil Nadu is providing the agro advisory service through Crop Doctor or Expert System in Agriculture and Animal Husbandry enterprises. Hence the significant percentage of the farmers were aware about the crop doctor.

It could be revealed from the Table 01 that 50 per cent of the farmers were aware extension information through Agricultural websites. This might be due to that the TNAU Agritech Portal hosted and provided by TNAU is popular among the extension workers and farmers and providing A to Z about the agricultural related information in local languages for the benefit of the farming community.

A little more than one-third of the famers (38.60) were aware about extension information through agricultural e-journals. The farmers need to spend considerable amount of money for accessing the e-journals. In addition to that the accessibility of the e-journals needs significant internet connection. Hence the minimum percentage of the farmers were aware about this service.

Relationship of Independent variables with Farmers Awareness about extension information through various ICT tools

The correlation test was used to define the relationship between the independent variables with farmers awareness about extension information through various ICT tools and the results are presented in the Table 02.

Table 02. Correlation analysis between independent variables and farmers awareness about extension information through various ICT tools

Sl.No.	Independent variables	Pearson Correlation test
01.	Personal Development	0.304**
02.	Farm Development	0.271**
03.	Technological Development	0.375**
04.	Social Development	0.318**
05.	Economical Development	0.274**
06.	Overall perceived impact on farmers	0.377**
07.	Farm power assets and societal affiliation	0.307**
08.	Source and type of irrigation	0.167**
09.	Possession e-gadgets	0.207**
10.	Operating knowledge	0.320**
11.	Attitude towards e-media	0.172**
12.	Information needs	0.168**
13.	Source of information	0.234**
14.	Extension agency linkage	0.309**
15.	Utilization of ICT tools and services	0.417**
16.	Utilization of Agri websites	0.364**

** Correlation is significant at the 0.01 level (2-tailed).

In the Table 02, it could be observed that all the independent variables selected for this study had a positive and significant relationship at one per cent level with farmers awareness about extension information through ICT tools / ICT enabled extension services.

The result was found that the personal development had significant relationship with the farmers awareness about the extension information through various ICT tools. It states that the increase in farmers' personal development would increase the awareness level about various recent development especially ICT tools which usually enrich their personal characteristics of the farmers. It is because of their personal development which directly influence the awareness level about the ICT tools or ICT enabled extension services.

There was a positive and significant relationship with the farm development and farmers awareness level about extension service through various ICT tools. It is accepted fact that farmers need latest and timely information to develop their farm. ICT tools would have given timely extension information to the farmers for farm development. Hence, the farm develop had positive and significant relationship with the dependent variable.

A brief look at the Table 02, revealed that the Technological development had a positive and significant relationship and farmers awareness about extension information through various ICT tools at one per cent level. This may be due to that the increased technological development would have enhanced the awareness level of the farmers about the ICT enabled extension services to the farmers. It could be inferred that the social development had positive and significant relationship with farmers' awareness about extension information through various ICT tools at one per cent level. It is well accepted fact that the increased social development will give more exposure to the various development interventions. This may be the reason for increasing awareness level of farmers about extension information through various ICT tools. Economical Development had positive and significant relationship with the farmers awareness about the extension information through various ICT tools at one per cent level. Increased economic development of farmers would increase the affordability to access the latest ICT tools. This may be the reason for farmers having more awareness about the extension information through various ICT tools.

The result was found that the overall perceived impact on farmers had positive and significant relationship with farmers' awareness about the information through various ICT tools at one per cent level. This is accepted fact that the increased perceived impact of ICT services on farmers which would have enhanced the increasing awareness level of extension information through various ICT tools.

A positive and significant relationship was noticed between the farm power assets and societal affiliation and source and type of irrigation with farmers' awareness about extension information through ICT tools. The availability of the farm power machinery and irrigation tools were informed only through ICT tools by the Agriculture depart-

ment. This may be reason for the farmers aware more number of ICT enabled extension services.

Possession e-gadgets had positive significant relationship with the farmers' awareness about the extension information through ICT tools. It is accepted fact that the possession of electronic gadgets would have enhance the more awareness about the farmers' ICT enabled extension information service. It could be revealed that the operating knowledge had positive and significant relationship with the farmers' awareness about extension information service through ICT tools. It is also well known fact that before operating knowledge of ICT tools, one needs to aware and understand the existing ICT tools. The result was found that the attitude towards e-media had positive and significant relationship the farmers' awareness about extension information through ICT tools. The favourable attitude towards e-media would have enhanced the awareness level of ICT tools and operating skill of ICT enabled extension services.

There was a positive significant relationship with the information needs and source of information with farmers' awareness about the extension information through ICT tools at one per cent level. If the farmers really needs information and able to access the source of information would facilitate them to search new tools to access the information at doorstep. Hence, the increased information needs and source of information would have enhanced the awareness about the extension information through ICT tools. Extension agency linkage had positive significant relationship with the farmers' awareness about the extension information through ICT tools. It is accepted fact that the farmers will be educated more ICT enabled extension service tools if they have regular contact with extension workers. Besides, extension agents will deliver latest agricultural information and farm specific agro advisory service to the farmers by using various ICT tools.

It was found that utilization of ICT tools and services and Utilization of agri websites had positive and significant relationship with farmers' awareness about the extension information through ICT tools. It is also well accepted fact that the utilization of various ICT services needs prior awareness and knowledge about the tools. Hence both utilization of ICT tools and services and utilization of agri websites had positively and significantly relationship with the dependent variables.

Conclusion:

The study results revealed that the farmers were significantly aware about the various extension services through ICT tools. However, the awareness about the agricultural e-journals, agricultural kiosks, crop doctor, agricultural websites and agri-clinic needs special attention to create awareness among the farmers for more usage and utilization for getting timely agro advisory services for improving production and productivity. All the identified independent variables in this study had positive and significant relationship with the farmers' awareness about the extension information through ICT tools. The similar type of independent variables may be strengthened in the similar areas for promoting and increasing utilization of ICT tools in agriculture to improve the farmers' knowledge and skill on agriculture related technologies and to solve the farmers related issues for improving the farm production as well as the standard of life of the farmers.

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