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RESEARCH PAPER

Utilization pattern of information available in TNAU Agri-tech portal by extension functionaries

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Abstract: Conventional method of technology transfer resulted in a slow and untimely dissemination of agricultural information among farmers and stakeholders. The Tamil Nadu Agricultural University (TNAU) designed an exclusive farm technology portal to overcome these constraints. The study is proposed to find the reach of TNAU Agritech Portal (http://agritech.tnau.ac.in) among the extension officials. The study was conducted among 60 extension officials from all the 12 blocks in Coimbatore district of Tamil Nadu, India. Utilization pattern of information available in TNAU Agritech Portal among the extension agents were collected through a well-structured and pre-tested interview schedule. Nearly three-fifth (57%) of the respondents were regularly using the portal to give advice to farmers and to enhance their knowledge in their specific fields and were in the category of medium utilization index. The degree of effectiveness of the TNAU Agritech portal was assessed through user's perception and more than three- fifth of the respondents (62%) have medium level of perception. More than three-fifth (64%) of the respondents felt that social networking tools and mobile applications are needed to share the useful information to make the TNAU Agritech portal effective. The practical implication of the study is leveraging Agricultural technological portals with more ICT tools like development of subject wise mobile apps, linkage through social networking, alerts through SMS, multimedia advisory tool etc., to enhance the wider utilization.

Key words: Dissemination, Extension officials, Information Needs, Perception, Utilization

Introduction

Information Communication Technology (ICT) heralds the formation of knowledge societies in rural areas of the developing world, which are only realizable when knowledge and information are effectively harvested for overall agricultural and rural development.

Agricultural Informatics (AI) is a new concept that has arisen following the rapid development in internet connectivity and Information and Communication Technology (ICT) across the world. There is a need to connect rural communication, research and extension networks and provide access to the much needed knowledge, technology and service (Forno, 1998). Dissemination of the required and recent agricultural information to the farmers in scattered villages in India is very difficult task. Transfer of technology to farmers is not a onetime exercise because new farm technology is being constantly evolved (Mehta, 2003).

In rural India, ICTs are already used to give an immediate and participatory form of administration. It is well known that radio, telephone, television, computer and print media are available everywhere even in the remote areas. With more than 137 million users, India is the third largest internet user base in the world. According to www.statista.com, with over 560 million internet users, India is the second largest online market in the world, ranked only behind China. It was estimated that by 2023, there would be over 650 million internet users the country. Modern ICT models have been able to deliver customized and new information to farmers to enable them to make quicker and better decisions (Surabhi and Mamta, 2015). Dhaka and Chayal (2010) concluded that the application of ICT in agriculture has emerged as an important pillar of agriculture extension focusing on the enhancement of agricultural and rural development through improved information sharing and communication processes. ICT and e-connectivity tools could be used to deliver the information to all the farming community effectively without losing or distortion of information. It has an added advantage which resolves the limited staff crisis for extension service.

For overcoming the constraints faced by the extension services in Tamil Nadu, an exclusive farm technology portal (http://agritech.tnau.ac.in) was designed and launched by integrating allied sectors including horticulture, sericulture, fisheries, forestry and animal husbandry, including seed sector, marketing, etc. by Tamil Nadu Agricultural University (TNAU). TNAU Agritech portal has the feature of dynamic and multimedia based content coverage in bi-lingual (Tamil and English) mode for the benefit of field extension officials and farmers. The portal has been launched on 27th October, 2009. It consists of around 8.5 lakh web pages with all the farm information for decision making at the field level. The present study has been designed to assess the utilization pattern of TNAU Agritech portal among extension officials of Tamil Nadu, examine their perception about content of the portal and the further required information to be added in the Portal.

Material and methods

Coimbatore is basically an agrarian dominated district with lot of enterprises of cash and agro-industry based resource production system. Hence, it is planned to conduct the research study in Coimbatore district. Further, all the blocks in Coimbatore are provided computer with internet connectivity under National Agricultural Development Program (NADP)-AGRISNET. There are six developmental departments functioning under Department of Agriculture viz, Agriculture, Horticulture, Agricultural

Table 1. Sample Size and Categorization

SI.No.	Categories	No. of Respondents
1	ADAs and ADHs	22
2	AOs and HOs	38
	Total	60

Marketing and Agri-Business, Seed Certification, Agricultural Engineering and Organic Certification in the state of Tamil Nadu. The extension approach of two-tier setup is followed at District and Block level. The extension officials placed in a block has to deliver technology advisories, provide crop insurance and distribute subsidised farm inputs such as seeds, fertilizers, drip equipment, farm machineries etc. Based upon the objectives of the study two categories of respondents viz., Assistant Director of Agriculture (ADAs) and Assistant Director of Horticulture (ADHs); Agricultural Officers (AOs) and Horticultural Officer (HOs) in the district were selected.

Note: As the 12 block consists of 24 ADAs and ADHs. There were two positions under vacant. Besides, each block has one AO and one HO. In addition, AOs and HOs in office of JDA, Seed Certification, Organic Certification and Marketing Department AO are included in the study. Hence, it comprises of 38 numbers.

A sample size of 60 extension officials was selected using purposive sampling from all the twelve blocks in Coimbatore district namely Anamalai, Annur, Karamadai, Kinathukadavu, Madhukkarai, Perianaickenpalayam, Pollachi North, Pollachi South, Sarkarsamakulam, Sultanpet, Sulur and Thondamuthur. Utilization pattern of information available in TNAU Agritech Portal among the extension agents were collected through a well-structured and pre-tested interview schedule. The statistical tools of cumulative frequency, percentage analysis, and rank order were used to analyze the collected data. Microsoft Excel and SPSS were used to enter the data and to analyze the statistical calculations to arrive at a meaningful result.

The respondents were asked to state the frequency of usage of the portal in a four-point continuum viz., regularly, occasionally, rarely and not used with the score of 4, 3, 2 and 1, respectively. Further, they were asked to give scores on the purpose of usage of portal against a three point continuum viz., a) reference and report preparation, b) enhancing knowledge and c) advice to the farmers with the score of 3, 2 and 1, respectively. From the data, Utilization Index was calculated by using the following formula.

Utilization Index = (Individual respondents score/Total Score) * 100

For knowing about user's perception about the TNAU Agritech portal, a list of items seeking respondent's perception about different content of portal was prepared and investigated against a three-point continuum viz., highly satisfied, satisfied and not satisfied with the score of 3, 2 and 1 respectively. Based on the scores, Perception Index was calculated using following formula.

Perception Index = (Individual respondents score/Total Score) * 100

Results and discussion

Utilization Pattern of TNAU Agritech Portal

Utilization pattern in this study refers to the extent of browsing of TNAU Agritech portal for better farming and getting agricultural information on time. For ensuring the usage of TNAU Agritech portal effectively and efficiently, it is necessary to find out the utilization pattern of the portal, which also gives us an idea about the outreach of portal. More than half (56.67%) of the respondents use the portal regularly followed by 35.00 per cent of the respondents use the portal occasionally and meager (8.33%) respondents use the portal rarely. It could be noted that no respondents were in the category of not used. Nearly three-fourth (70.00%) of the respondents use the portal to give advice to the farmers followed by 60.00 per cent of the respondents to enhance their knowledge in their field. Only 20.00 per cent of the respondents use TNAU Agritech portal for preparation of reports.

The notable reason for occasionally usage of the portal is that most of the ADAs and ADHs were overloaded with administrative works and other office activities. The time available for them in surfing through the internet is limited and is usually assisted by subordinates if necessity arises. Most of the respondents were in middle and old age category. Even though they had exposure to TNAU Agritech portal and they liked to refer to only the links which they are familiar such as market information, daily newspaper, crop production, crop protection etc. The respondents stated that they use portal for enhancing their knowledge and to give advice to the farmers. They use portal information and pictures for the preparation of leaflets and pamphlets to create awareness about a particular technology among farming community.

Utilization Index

Information utilization is transfer of information along a series of pathways that connect groups and individuals in a variety of roles and settings. The distribution of the respondents according to the utilization index is furnished in the following Table 3.

Table 2. Distribution of the respondents according to the utilization pattern of TNAU Agritech portal (n=60)

Sl.No.	Frequency of use	Number	Per cent
1	Regularly	34	56.67
2	Occasionally	21	35.00
3	Rarely	5	8.33
4	Not used	-	-
Purpose of use (Multiple responses obtained)			
1	Reference and report preparation	12	20.00
2	Enhancing knowledge	36	60.00
3	Advice to the farmers	42	70.00

Table 3. Distribution of the respondents according to the Utilization Index (n=60)

Sl.No	Categories	Number	Per cent
1	Low (68-135)	8	13.33
2	Medium (136-203)	34	56.67
3	High (204-272)	18	30.00
Total	60	100.00	

More than half (56.66%) of the respondents were in the category of medium utilization index. Considerable proportion (30.00%) of the respondents fell in the category of high utilization index followed by 13.33 per cent in low utilization index. All the officials refer to portal related to their own area of specialization.

From the Figure 1, most of the extension functionaries frequently use Dynamic Market Information (DMI) followed by crop protection measures such as pest and diseases for finding proper recommendations. Daily newspaper ranks third, as they could find all the news papers and magazines related to agriculture in a single place easily. Special technologies, crop production and schemes & services ranks fourth, fifth and sixth, respectively. Respondents also frequently refer to the recent updates to know about the latest technologies and success stories of the farmers. Few respondents refer to the information related to banking and credit link in the portal, which help them to facilitate the farmers for financial assistance.

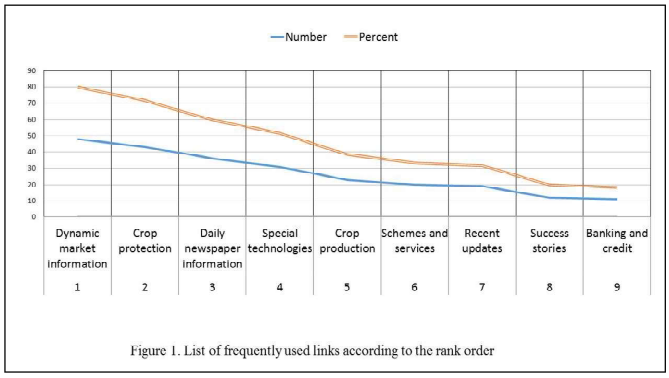

Fig. 1. List of frequently used links according to the rank order (n=60)

Dissemination of portal information

The information utilized by the respondents is fruitful when it reaches the end users. Majority (86.66%) of the respondents disseminate the information orally followed by conducting training (76.66%). They also use the information in clearing the doubts of the farmers if they meet personally or call them over phone. Other than this, respondents disseminate the information that they gained from the portal through Short Message Service (SMS) and printouts. Meager per cent of the respondents (3.33%) use

e-mails for information circulation. It was also clear that respondents were not employing a single method for dissemination of portal information. A combination of two or more methods makes the information dissemination more effective.

Perception towards Portal Content

In the competitive era, information is being treated as the sixth and most important resource in addition to the most traditional resources namely man, machine, money, material and time. Hence, a systematic process involving researchers and communication specialists is required to develop high quality

Table 4. Distribution of the respondents according to the method of dissemination of portal information (n=60)

SI.No	Categories	Number	Per cent
1	Oral (personal and mass contact methods, telephone calls etc.)	52	86.66
2	Printout	3	5.00
3	SMS	6	10.00
4	Phone Calls	12	20.00
5	Training	46	76.66
6	e-mail	2	3.33

Source: n=60 (Multiple responses)

Table 5. Distribution of the respondents according to the Perception Index (n=60)

Sl.No	Categories	Number	Per cent
1.	Low	14	23.33
2.	Medium	37	61.67
3.	High	09	15.00
	Total	60	100.00

media material and design a rational distribution system that will ensure that the information reaches the intended audience effectively. Hence, the degree of effectiveness of the TNAU Agritech portal have been assessed through user's perception. It is assumed that greater the perception of the respondent's towards TNAU Agritech portal, greater would be the users' exposure and post exposure activities

More than three-fifth (61.67%) of the respondents have medium level of perception followed by nearly one-fourth (23.33%) of the respondents in the low perception category. Considerable proportion (15.00%) of the respondents was having high perception towards the portal content. The reason may be that most of the respondents were in middle and old age category who were aware of the ICT tools, but not relying completely on using them for technology dissemination. Most of the extension agents felt that a single tool will not serve the purpose which shows inadequate knowledge about the portal and hence more training programmes may be organised to make them familiar about the portal.

Respondent's Perception about various components of TNAU Agritech Portal

It was observed from Table 6 that 85 percent of the respondents were highly satisfied with the attractiveness of home page design. Rest of the respondents was in moderately satisfied category. Majority (80.00%) of the respondents were highly satisfied with the background color and appearance followed by 12 per cent in moderately satisfied category. Nearly one third (30.00%) of the respondents were moderately satisfied with the text size followed by 20 per cent of the respondents were in highly satisfied category.

Majority of the respondents were highly satisfied with the information provided in TNAU Agritech portal. It may be due to the presentation of the information under appropriate sub heads, clarity of information and arrangement in a proper sequence in the portal. The respondents in moderately and not

Table 6. Distribution of the respondents according to their overall perception on TNAU Agritech portal (n=60)

Sl.No	Items	Highly satisfied		Moderately satisfied		Not satisfied	
		No	%	No	%	No	%
1	Attractiveness of the home page design	51	85	9	15	-	-
2	Background colour and appearance	48	80	7	12	5	8
3	Text size	12	20	18	30	30	50
4	Information provided	38	63	16	27	6	10
5	Photographs and visuals	33	55	22	37	5	8
6	Audio content	12	20	42	70	6	10
7	Video modules	15	25	35	58	10	17
8	Hyperlinks	9	15	42	70	9	15
9	Navigation	5	8	51	85	4	7

satisfied category were 27 per cent and 10 per cent respectively. Most of the respondents have not gone through the video modules and audio content uploaded in the TNAU Agritech portal as they couldn't find time to watch them. They also added that the portal is comprised of vast information and they have not gone through all the pages in the portal.

Further information need

More than half (51.66%) of the respondents stated that even though sufficient number of photographs is given for common pest and disease symptoms. However, the photographs for rare and new pest and disease are not available within the portal. A considerable proportion (47.00%) of respondents have stated that proper contact address and mobile number of the experts have to be mentioned under each technology for further enquiry.

More than one third (37 %) of the respondents have felt that area specific information is required to be added. More detailed information of special technologies and package of practices which is required by 32 per cent of the respondents. Area specific information includes block wise soil fertility, water table level, suitable crops for the location and climate. Details on availability of input are required by 22 per cent on the respondents and 20 per cent of the respondents need more detail on value addition of products. Frequently Asked Questions (FAQ) were needed by 17 per cent of the respondents. Besides, 15 per cent of the respondents need more success and failure stories followed by 10 per cent of the respondents require details of important institutions and laboratories.

Innovative ideas suggested by respondents to be introduced to make the TNAU Agritech portal more classic were given in Figure 2. There were high demand among the respondents (91.66%) for a mobile application compatible for the new generation smart phones which ensure easy access to the agricultural information. Mobile technology goes beyond geographic, socio-economic, and cultural barriers and this large increase in mobile subscriptions, along with the recent roll out of 3G and 4G technology, can play a big role in the development of rural people (Saravanan and Suchiradipta, 2015). More than three fifth (63.33%) of the respondents need to have the facility to share the useful information through social networking tools. More than half of the respondents (53.33%) need the latest agricultural information as an alert in the form of Short Message Service (SMS) to their mobile phones.

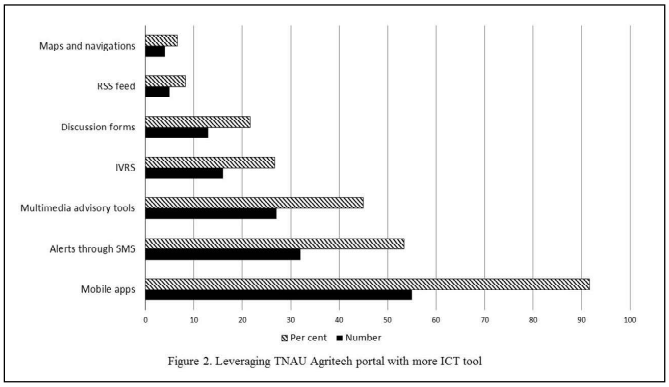

Fig. 2. Leveraging TNAU Agritech portal with more ICT tools (n=60)

Nearly half (45.00%) of the respondents need multimedia advisory tools to be introduced for the further improvement of the portal. More than one fifth (21.66%) of the respondents need IVRS (Interactive Voice Response System) to be introduced for the better use of the portal by illiterate farmers. The percentage of respondents requires the facilities like discussion forum, RSS feed, maps and navigations were 21.66, 8.33, and 6.66 per cent respectively.

Conclusion

Information and Communication Technology (ICT) is proved to be a powerful tool to reach the downtrodden and neglected farming communities. The ICT tools could be used for dissemination of the agricultural and allied technologies in time with minimum budget. For making information transfer more effective, greater use of modern information technology and communication need to be made available among researchers, extension agents and farmers. TNAU Agritech portal is a farm technology portal designed and launched to overcome the constraints faced by extension system in Tamil Nadu. The degree of effectiveness of the TNAU Agritech portal and utilisation of information available in the portal is perceived as medium level by the extension agents. Increasing awareness among the farmers and extension agents, timely updating, inclusion of location specific information and market information may increase the utilization of the TNAU Agritech portal upto its potential. Leveraging TNAU Agritech portal with more ICT tools like development of subject wise mobile apps, linkage through social networking, alerts through SMS, multimedia advisory tool *etc.* may enhance the wider utilization of the portal.

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