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Information Seeking Behaviour for Adoption of Tnau Released Rice Varieties

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aim: This study aims to study the information seeking behavior of the respondents from various information sources and credibility of the information regarding TNAU released rice varieties.
Study Design: Ex-post facto research design.
Place and Duration of the Study: The present study was conducted in two blocks namely Melur and Madurai East blocks of Madurai district in Tamil Nadu. The study was conducted during July and August 2021.
Methodology: 120 paddy growers from Melur and Madurai east blocks were randomly selected and interviewed using a pre-tested interview schedule to study the information seeking behavior of the farmers for the adoption Tamil Nadu Agricultural University (TNAU) released rice varieties.
Results: Outcomes showed that cent percent of the respondents are getting information from their friends regarding newer varieties. 96.67 percent of the respondents seeks information from Agricultural Officers (AOs) whereas only 5.83 percent seek information from Agricultural Scientists. In recent days, farmers have started using various mass media sources like TV, Portals, websites, mobile apps and Kisan Call centers. The highest credibility of 93.33 percent score were obtained from Friends in personal localite source and 84.21 percent credibility was noted for the information from AOs in cosmopolite source. Also, cent percent credibility noted for Kisan call center amongst the respondents and less credibility observed for internet sources like websites and portals.It could

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be interpreted that the majority farmers was technologically illiterate to use e-sources like mobile apps, portals etc. as they had very less years of formal education.
Conclusion: It can be concluded that the information sources can be designed based on farmers needs and preferences. And information gap should be reduced.

Keywords: Adoption; information source; credibility; cosmopolitans; personal localite; mass media.

1. INTRODUCTION

India has a large agrarian economy with the majority of its rural population subsisting on farming. Rice (*Oryza sativa* L. is the most important staple food in Asia. More than 90 percent of the world's rice is grown and consumed in Asia, where 60 percent of the world's population lives [1]. Rice is the only crop that grows well in large areas of wetlands in monsoon Asia. Most of these rainfed rice areas regularly suffer from various abiotic stresses such as droughts, floods and salinity. Improving the productivity of rice through stress-tolerant technologies is a key entry point to enhance the income and livelihood of resource-poor farmers in these stress-prone environments [2].

In India more than 1200 varieties were released for cultivation suitable different ecosystems [3] and about 178 of rice varieties from Tamil Nadu [4] notified every year by different Research Institutes, State Agricultural Universities(SAUs), Non-Governmental Organizations (NGOs) etc. but very few varieties reach the farmers [5]. This adoption gap is mainly due to information spread among farmers regarding improved varieties. Also the available information sources lack credibility among farmers. This study is done to assess the information-seeking behavior of farmers and credibility of sources.

The spread of the newer varieties replacing the older varieties need to be closely monitored to take advantage of the superior characters of these newer varieties released by various Research Stations. This will help to break the yield plateau that has been experiencing in rice crops in the recent past and to increase the production and productivity of the crop. Though a number of steps are taken by the Government to popularize these varieties like Frontline Demonstrations, organizing training programmes for farmers, farm women, seed growers, seed production personnel of public and private agencies, extension functionaries of State department of Agriculture, officials of State Agricultural Universities and NGO's. There is no concrete data to prove that the newer varieties of rice are spreading faster and replacing the older ones. Therefore, it is essential to conduct a study to assess the actual diffusion of these newer varieties in terms of area with a simultaneous reduction in the area under older varieties for rice crop and increases in the average yield/ha. This will help the Government of Tamil Nadu to draw a plan for augmenting the spread of superior newer varieties in place of the older varieties.

2. METHODOLOGY

The study was conducted in Melur and Madurai East blocks of Madurai district. The blocks were selected purposively based on the highest area under paddy cultivation in the District. Six villages have been selected for the study using a proportionate random sampling method. A Sample size of 120 paddy growers was selected using simple random sampling method. The data were collected through a well-structured and pre-tested interview schedule. The responses were recorded and given scoring 2,1 and 0 for often, occasional and never for information seeking from the sources and 2,1 and 0 was given for Full, partial and no credibility of information sources. The data was analyzed using simple percentage analysis using MS Excel software. The calculation for overall credibility of sources, following formula used:

$$CI_i = \frac{Oi}{Si} \times 100$$

Where,
CI i = Credibility index for *i th* respondent
Oi = Total score obtained by *i th* respondent
S = Maximum obtainable score

3. RESULTS AND DISCUSSION

The data regarding information seeking behavior of the respondents were collected, analysed and presented in Table 1.

Table 1. Distribution of respondents according to their information seeking behavior (n=120)

Information Sources		Types of information seeking behaviour						Overall information seeking		Rank
		Often		Occasional		Never				
		N	%	N	%	N	%	N	%	
A. Personal localite										
1	Friends	109	90.83	11	9.17	0	0	120	**100**	**1**
2	Neighbours	58	48.33	59	49.2	3	2.5	117	**97.50**	**2**
3	Input dealers	32	26.67	71	73.3	17	14.17	103	85.83	6
4	Progressive farmers	64	53.33	13	10.8	43	35.8	77	64.17	7
B. Cosmopolite source										
1	AOs	81	67.50	33	27.5	6	5	114	95.00	4
2	AAOs	78	65	38	31.7	4	3.33	116	**96.67**	**3**
3	SMS	5	4.167	27	22.5	88	73.3	32	26.67	9
4	Agrl scientists	0	0	7	5.83	113	94.2	7	5.83	13
C. Mass media										
1	Farm magazine	0	0	13	10.8	107	89.2	13	10.83	11
2	Radio	11	9.17	43	35.8	66	55	54	45.00	8
3	Television	18	15	87	72.5	15	12.5	105	87.50	5
4	Kisan call center	0	0	5	4.17	115	95.8	5	4.16	14
5	Mobile apps	3	2.5	8	6.67	109	90.8	11	9.17	12
6	Portals/websites	1	0.83	13	10.8	106	88.3	14	**11.67**	**10**

(Data based on multiple response, N= Number of responses, % = percentage)

Table 2. Distribution of respondents according to credibility of Information sources (n=120)

Information Sources		Level of credibility						Total obtained score	Maximum obtainable score	Overall credibility %	Rank
		Full		Partial		Nil					
		N	%	N	%	N	%				
A. Personal localite											
1	Friends	92	76.67	28	23.33	0	0	**224**	**240**	**93.33**	**II**
2	Neighbours	71	59.17	43	35.83	6	5	185	228	81.14	VI
3	Input dealers	94	78.33	26	21.67	0	0	214	240	89.17	III
4	Progressive farmers	64	53.33	34	28.33	22	18.34	162	196	82.65	V
B. Cosmopolitans											
1	AOs	52	43.33	68	56.67	0	0	172	240	71.67	VIII
2	AAOs	65	54.17	30	25	25	5	160	190	84.21	IV
3	SMS	14	11.67	32	26.67	74	0	60	92	65.22	XI
4	Agrl scientists	19	3.333	7	15.83	97	18.34	27	46	58.70	XIII
C. Mass media											
1	Farm magazine	9	7.5	17	14.17	94	78.3	35	52	67.31	IX
2	Radio	16	13.33	32	26.67	72	60	64	96	66.67	X
3	Television	24	20	27	22.5	69	57.5	75	102	73.53	VII
4	Kisan call center	6	5	0	0	114	95	**12**	**12**	**100.00**	**I**
5	Mobile apps	7	5.83	27	22.5	86	71.7	41	68	60.29	XII
6	Portals/websites	0	0	13	10.83	107	89.2	13	26	50.00	XIV

(Data based on multiple response, N= Number of responses,% = percentage)

3.1 Source of Information for TNAU Released Rice Varieties

Source of information, mainly categorized into three categories *i.e.* personal localite, cosmopolitans and mass media in Table 1.

3.1.1 Personal localite source

From Table 1, it could be observed that under the personal localite information sources, cent percent of the respondents used a friend for the information in which majority (90.83%) respondents often got information followed by 9.17 percent of the respondents often collect information from this sources. Further, observed that 97.50 percent of the respondents seek neighbours as an information source, only 64.17 percent of the respondents gathered information from progressive farmers of which 53.33 percent of the respondents got information often whereas only 13 percent of the respondents occasionally got information from this source.

This could be inferred that the reason might be that the respondents had regular contact with friends and neighbours which built a strong rapport with them. Frequent face to face contact has influenced information-seeking behavior.

3.1.2 Cosmopolite source

With respect to the use of cosmopolite sources, it was observed that majority (96.67%) of the respondents collected information from Assistant Agriculture Extension Officers in which 78 percent respondents often gathered information regarding TNAU released rice varieties whereas 31.17 percent of the respondents occasionally got information from this source. Only 5.83 percent of the respondents got information from Agriculture Scientist which all respondents occasionally used the source and the remaining 94.20 percent of the respondents not seeking information from this source.

The lag between farmers and research-extension systems marks a huge barrier for information dissemination. This may be due to inadequate extension workers to meet out large population of famers. In order to reduce this gap, the ratio of extension workers to farmers must be increased.

3.1.3 Mass media source

It could be inferred from the Table 1 that only 10.83 percent of the respondents used farm magazine for the information of TNAU released rice varieties in which all respondents only occasionally used and the remaining 89.20 percent of the respondents not used this source. 87.50 percent of the respondents used television for the information of which 72.50 percent of the respondents occasionally seeking information from television and 15.00 percent of the respondents often seeking information. Only 11.67 percent of the respondents got information from the portals and websites of which 10.80 percent respondents occasionally used this source and 88.30 percent of the respondents did not get information from this source. Whereas only 4.16 percent of the respondents seeking information from Kisan Call Centre and they were only occasionally used.

Similarly, Pathak et al. [4] reported that all the respondents got information from pesticide dealers and traders (76%), personal experiences (70%), neighbouring farmers (68%) and village level agricultural workers (64%), respectively. A percentage of the respondents (40%) got the information from mass media and only 36 percent respondents were from Agricultural Extension Officer.

In line with the present study, the NSS Report 2012-13 '[6] Progressive farmer' and 'radio/TV/newspaper/ internet' were the two most preferred sources for technical advice by the agricultural households. Farmers mainly rely on these sources for necessary information regarding agriculture. Several studies have found the similar result where progressive farmers and input dealers were major source of information (Burman et al 2013, Saravana, 2011), [7,8].

3.2 The Credibility of Information Sources of the Respondents

The credibility of information sources were categorized as full, partial and no credibility and the data was presented in Table 2.

3.2.1 Credibility on personal localite

It could be inferred from Table 2, that the highest credibility percentage (93.30%) was obtained for friends in this group in which 76.67 percent full credibility was recorded and 23.33 percent credibility was partial for this source. 81.14 percent credibility recorded for neighbours whereas 35.83 percent credibility was observed partial and only 59.17 percent credibility was noted as fully credible. As the farmers have face

to face contact and a tight rapport with the personal localite sources including friends, neighbours etc. makes the channel more credibile source. Also Majority of the farmers hold small and marginal land holdings, this limits their risk taking ability. And so they seek information from credible sources.

3.2.2 Credibility on cosmopolite source

With respect to the credibility of the cosmopolite source, the Table 2 illustrated that the highest credibility was observed for Assistant agricultural officer in whom 25 percent obtained as partial credibility and 54.17 percent credibility was noted as full credibility. Only 58.70 percent credibility was recorded for Agricultural scientists in which 15.83 percent recorded as partial credibility and only 3.33 percent recorded as full credibility.

Whereas Painkra et al. [9] has mentioned that Senior Agricultural Development Officers (SADOs) and Rural Agricultural Extension Officers (RAEOs) were having more than 95 per cent credibility among the respondents as they believe the extension workers are the official source of information.

3.2.3 Credibility of mass media

With regard to the credibility of mass media sources, the highest (100%) credibility recorded for Kisan Call Centre in which cent percent recorded as full credibility. Further illustrated by the table, 73.53 percent credibility was recorded for television amongst respondents in which 22.50 percent recorded as partial credibility and 20.00 percent recorded as full credibility whereas only 50.00 percent credibility was observed for portals and websites amongst respondents, in which 10.83 percent partial credibility recorded amongst respondents.

Similarly, the study of Singh et al. [10] shows that the farmers on mobile based information service, mKRISHI faced severe problems of lack of update information, high cost for service provided, low IT literacy and low literacy.

Table 2 reveals that the flexibility of KCC is the major reason behind the cent percent credibility as they are easy to approach and provide timely information for the queries in local languages. Majority of the farmer respondents have access to mobile phones, but not enough access to internet and limited knowledge to mobile applications and web portals. This may be due to less number of years of formal education

3.3 Overall Information Seeking Behavior along with the Overall Credibility of Information Sources

Regarding overall information seeking behavior and overall credibility of information sources, Table 3 illustrated that respondents had the highest (86.88%) information-seeking behavior for TNAU released rice varieties from personal localite followed by 56.04 percent information seeking behavior recorded for cosmopolitans whereas only 28.06 percent information-seeking behavior observed from mass media.

Further about overall credibility, highest credibility (86.84%) noted for personal localite followed by cosmopolitans (73.77%) and 67.42 percent credibility was observed for mass media sources.

These findings are in line with Singh et al. [11] revealed that the source of information utilized by moth bean growers was found to be significantly associated with the level of knowledge and extent of adoption.

Borthakur et al. [12] depicted that farmers residing in districts that do not have a Regional Agricultural Research Stations (RARS) will probably get even less information and opportunities regarding new varieties released by Assam Agricultural University.

Table 3. Overall information seeking behavior along with overall credibility of information sources

Information source group	Overall used information sources			Overall credibility of information sources		
	Obtained score	Obtainable score	%	Obtained score	Obtainable score	%
Personal localite	417	480	86.88	785	904	86.84
Cosmopolitans	269	480	56.04	419	568	73.77
Mass media	202	720	28.06	240	356	67.42

4. CONCLUSION

The study concluded that need to focus on cosmopolite sources for the speedy adoption of TNAU released varieties and to reduce the information gap that occurred amongst respondents. With respect to the use of various sources, none of the respondents have fully used the information sources. The provision and targeted delivery of agricultural information to small and marginal farmers remain a challenge in extension programs. The majority of the respondents partially used the information sources like field officials of Agricultural department, Subject Matter Specialists from KVKs etc. to know about TNAU released rice varieties like ADT 45, Co 51, ASD 16 and others. And most of the respondents were interested in non-TNAU rice varieties like Akshaya, Sri, JGL 1798 etc. as the rice growers are well aware about the varieties due to constant and repetitive advertisements, campaigns, field visits of the private seed companies as they have a vast network of marketing and field level agents for promotion of their variety. Also the timely information regarding seed availability in the locality makes it more preferable for the farmers. More infrastructure and ICT interventions could be employed to reduce the information gap between the famers and Research Institutes. Majority of the farmers are interested in getting information from personal localite sources as it is easily approachable and information is readily available to them.

Agriculture information is dynamic, due to increased awareness of farmers of their needs. Farmers use a combination of formal and informal sources of information to secure information. More than 90 per cent of farmers reported that they are accessing information from other farmers located in their own or neighbouring villages. The farmers use multiple sources of information because no one source gives them complete information. They also do not completely trust any one source. Among all the surveyed farmers, 99 per cent said they had access to mobile phones. However, only 1 per cent indicated that they have access to agricultural information through the internet. The provision and targeted delivery of agricultural information to small and marginal farmers remain a challenge in extension programs. Overall lack of extension facilities and access to agricultural inputs are the major constraints that farmers face in fully utilizing the benefits of information.

The adoption area of TNAU varieties may be enhanced with more focus on the diffusion of improved rice varieties by reducing the information gap through persistent campaigns, frequent advertisements, field demonstrations and to develop the approaches to reach out the personal localite sources of information like friends neighbouring farmers etc. since the personal localites are the most credible source of information

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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