

## Research Article

# Perceived Utility and Users' Satisfaction about Information Provided by Rice Knowledge Management Portal (RKMP)

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## ABSTRACT

Present world is observing the vast of information availability in public as well as private domain. With the advent of information technology, the world is getting much competitive. Information and communication technologies have been establishing themselves for so long as the futuristic tools for technology dissemination. In process of reaching up to the ultimate users in agrarian system, Indian Council of Agricultural Research, with the help of Indian Institute of Rice Research, Hyderabad has developed Rice Knowledge Management Portal (RKMP) to provide all the information related to rice. The present study was conducted with the purpose of studying perceived utility and users' satisfaction about information provided by RKMP. The research was conducted in purposively selected districts of Nalgonda in Telangana and West Godavari of Andhra Pradesh, and simple random sampling technique was used to select the respondents. *Ex post facto* research design was used; data was collected using semi-structured interview schedule. Responses upon perception about the content of the portal by various stakeholders were collected using *Likert*-type scale. It was found that 57.5% of the farmers strongly perceived that RKMP content is related to improved cultivation practices, 56.7% of the scientists strongly perceived that content is in simple language and 70% of the extension personnel moderately perceived that content is free of spelling errors. Satisfaction with information provided in RKMP revealed that 51.3% of the farmers were mostly satisfied with the adequate content. A percentage of 66.7 scientists were mostly satisfied with the adequate content, whereas 73.3% of the extension personnel were strongly satisfied with the timeliness of information provided by RKMP. The finding will help in restructuring and incorporating necessary modification for reaching the unreached for effective dissemination of information and making portal more effective for users to ensure timely and relevant information.

**Keywords:** Perceived utility, Utility perception index, Satisfaction, RKMP, ICT, Knowledge Management, Rice

## INTRODUCTION

Indian agriculture involves millions of small and marginal farmers, and many of those small and marginal farmers are illiterate and have little or no access to resources to access modern technology in agriculture (Yadav *et al.*, 2015). The primary task of agricultural extension service is to exchange and share agricultural information. The transfer and application of agricultural information from lab to land is very important as it helps farmers to learn those innovations, which leads to improvement in agricultural productivity. Knowledge management (KM) is considered to be a difficult task in Indian agriculture and became one

of the foremost agendas in many research institutions and organisations (Alavi and Leidner, 2001; Tan and Wong, 2015). It constitutes of dynamic and continuous set of the process which enables the organisation's enhancement and expands their innovation processes (Karadsheh *et al.*, 2009). Information and communication technology (ICT) has emerged as a tool for achieving meaningful societal transformation (Meera *et al.*, 2004). The goal of ICT is to provide the benefits of information revolution to the rural masses by enhancing farming efficiency, farm productivity and farmers' income (Sangeetha *et al.*, 2015). Information is regarded as one of the most valuable resource in

agricultural and rural development programmes (Morrow *et al.*, 2002). It is also regarded as an important input in agriculture (Oguya, 2007). The information is usually found to be focused little, or no attention is paid to the information needs of farmers who are the targeted beneficiaries of the policy decisions (Omenesa, 2007). The challenge is to improve the accessibility of farmers to information and its relevance in the agricultural development (Sharma, 2003). If farmers are provided with the right inputs, feasible technology and relevant information which they actually need, they are capable of transforming conventional farming practices (Tolobonse *et al.*, 2008). To meet these requirements, Indian council of agricultural research (ICAR) introduced the knowledge portals for reaching to grass root level of agriculture and capturing, managing and dissemination information and providing a platform to all the stakeholders of agriculture, especially the farmers, and catering all their information needs. Several initiatives were taken by ICAR to digitise the information so that it can be use at farm level more efficiently. In process of that, Indian Institute of Rice Research (IIRR) along with consortium partners has developed Rice Knowledge Management Portal (RKMP) especially for rice-related information. Portal was arranged for all the stakeholders separately in specific domains. So by using portal, different stakeholders can search information regarding their needs. It provides many specific queries for rice research and cultivation, such as variety selection, disease management, pest and site specific frequently asked questions (Das *et al.*, 2013). The efforts paved the way to reduce the gaps of the growing 'digital information divide' specifically in the important cereal crop of the country, namely rice (Meera *et al.*, 2014). Agricultural KM systems are meant to produce accessible content in local languages according to rural community needs, and the success of the implementation of new agricultural technology depends on the success of communication between the agricultural experts and the farmers (Faisal, 2010). Therefore, it is important to assess perceived utility and satisfaction of users. So an attempt was made to analyse the perceived utility and users' satisfaction about information provided by RKMP.

## METHODOLOGY

The present study was conducted in purposively selected state of Telangana and Andhra Pradesh. These states were for locale of study. RKMP project was implemented in these states of Andhra Pradesh (rice bowl of India) and Telangana. As IIRR is the host institute, it implies to understand how

RKMP by using its knowledge repository can disseminate information to stakeholders (farmers, scientists and extension personnel) for managing timely and relevant information. To select the respondents, a multi-stage random-sampling technique was used, and a structured questionnaire which gathered information to study the utility, perception and satisfaction of stakeholders of stakeholders was also utilised. From each selected state, one district was selected purposively based on implementation of RKMP Project. From Telangana state, Nalgonda district and from Andhra Pradesh, West Godavari district were selected purposively as the project was implemented in these districts since its inception. For the detailed survey, a total of 80 farmers were selected from these two states. For scientists, 15 respondents were selected for the survey from two selected organisations, IIRR (Hyderabad) and Andhra Pradesh Rice Research Institute & Regional Agricultural Research Station, Maruteru, West Godavari District, Andhra Pradesh (Acharya N.G. Ranga Agricultural University). So, total 30 scientists were selected for the study. In the case of extension personnel, 15 respondents were selected from each Nalgonda and West Godavari district, and thus, total 30 respondents were selected for the survey. Therefore, the study was conducted among 140 stakeholders of RKMP, namely 80 farmers, 30 scientists and 30 extension personnel.

## Utility Perception

In the present study, utility perception was operationally defined as interpretation of rice growers about usefulness of recommended rice-cultivation information. Responses from respondents were collected on five point continuum, namely strongly agree, agree, neutral, disagree and strongly disagree by assigning score 5, 4, 3, 2 and 1, respectively. Raw utility perception score was converted into utility perception index by using the following formula:

$$\text{Utility perception index} = \frac{\text{Perception score actually obtained}}{\text{Max. obtainable perception score}} \times 100$$

Based on the utility perception index score, respondents were categorised with the help of equal interval method as follows:

Utility Perception Level	Range
Low up to 33.33	Low up to 33.33
Medium 33.34 to 66.66	Medium 33.34 to 66.66
High above 66.67	High above 66.67

## RESULTS AND DISCUSSION

### Utility of Information Provided by RKMP as Perceived by Stakeholder

The utility perception of stakeholders (farmers, agricultural scientists and extension personnel) was measured using a utility perception index. Different dimensions of information were listed and were responses were observed on *Likert*-type scale.

Table 1 depicted the result about utility of the information provided by RKMP as perceived by farmers. About 32.5% farmers strongly agreed that RKMP helped them to prevent the pest attack, followed by the information provided by RKMP, which was highly relevant to their farming system (30%), and to reduce weed infestation due to available information on weed management (27.0%). About 26% farmers strongly agreed that the use of information provided on the RKMP had benefited them in terms of reducing pest attack and increasing yield followed by weather-based information provided under RKMP, which helped them to know the rainfall, smog and precipitation (23.8%), whereas 48.8% farmers strongly disagreed with the statement 'RKMP information did not help them to know about improved cultivation practices relevant to their local condition' followed by 'RKMP did not help them to know about improved varieties/hybrids'. Similarly, perception score and utility perception score were calculated and arranged in decreasing order. Findings of the present investigation are in harmony with the similar study conducted by Yadav (2011) in her study on Agropedia and aAQUA and reported that majority of farmers found that the content was moderately useful. Similarly, Dhaka and Chahal (2016) reported that information on weather factors

like rainfall, temperature and humidity was considered most appropriate by majority of respondents and improved crop production and management practices were most appropriate. Dhakar *et al.* (2013) found that location specific information had the highest utility perception index (86.96) followed by timeliness (82), understandability (80.4), applicability (77.36) and simplicity (75.36) for ICT-based programme (Table 2).

**Table 2: Distribution of farmers on perceived utility of information provided by RKMP ( $n = 80$ )**

Categories	Respondents	
	Number	Per Cent
Low (16–37.33)	8	10.00
Medium (37.34–58.66)	58	72.50
High (58.67–80)	14	17.50

Table 3 provided the result about perceived utility of the information provided by RKMP to scientists. About 67% of the scientists strongly agreed that RKMP helped them to know about disease management followed by weed management (33.3%) and to explore different markets (30.0%). About 73% of the scientists agreed that RKMP was useful to know about improved cultivation practices followed by information provided by RKMP, which was highly relevant to their farming system (40.0%). About 33% of the scientists strongly disagreed that information provided by 'RKMP was useful to explore different markets and not useful to know about improved varieties or hybrids' followed by 'to know pest management' (30.0%). Based on perception and utility perception scores, the statements were arranged in decreasing order, and rank order was arranged for each statement. The similar result was observed by Benigeri and Pluye (2003) (Table 4).

**Table 1: Perceived utility of information provided by RKMP as perceived by farmers ( $n = 80$ )**

Sl.No.	Statements	SA	A	N	DA	SDA	PS	UPI	Rank
1.	Useful to prevent pest attack	21	29	8	8	14	275	68.75	1
2.	Not useful to reduce weed infestation	25	13	6	27	14	263	65.75	2
3.	Useful to adopt improved varieties/hybrids	24	15	13	12	16	259	64.75	3
4.	Useful to get explore different market	18	20	13	9	20	247	61.75	4
5.	Useful to manage pest well	26	9	7	15	23	240	60.00	5
6.	Useful to get higher market price	13	21	13	12	21	233	58.25	6
7.	Improved cultivation practices is not location specific	16	15	10	21	18	230	57.51	7
8.	Reduced the damage caused by the disease	9	16	21	23	11	229	57.25	8
9.	Highly relevant to my farming system	0	0	31	23	26	165	41.25	9
10.	Useful to get to export opportunities	0	0	6	35	39	127	31.75	10

SA = strongly agree, A = agree, N = neutral, DA = disagree, SDA = strongly disagree, PS = perception score, UPI = utility perception score.

**Table 3: Perceived utility of information provided by RKMP as perceived by scientists (n = 30)**

Sl.No.	Statements	SA	A	N	DA	SDA	PS	UPI	Rank
1.	Useful to know about improved varieties/hybrids	02	03	06	10	20	130	86.70	1
2.	To know about disease management	02	03	03	09	05	123	82.00	2
3.	To know about pest management	12	02	03	06	03	106	70.71	3
4.	Useful to know locale specific information	06	22	01	02	05	92	61.32	4
5.	Useful to get explore different market	11	07	10	04	2	81	54.01	5
6.	Useful to know weather-based information	05	02	20	01	11	81	54.02	6
7.	Useful to get agro-advisory relevant to the farming system	01	08	07	07	02	80	53.33	7
8.	Useful to know about market price	08	02	03	08	06	79	52.67	8
9.	To know about improved cultivation practices	04	10	4	03	03	74	49.33	9
10.	Useful to know about weed management	09	01	03	10	03	54	36.01	10

SA = strongly agree, A = agree, N = neutral, DA = disagree, SDA = strongly disagree, PS = perception score, UPI = utility perception score.

**Table 4: Distribution of scientists on perceived utility of information provided by RKMP (n = 30)**

Categories	Respondents	
	Number	Per Cent
Low (16–37.33)	4	13.33
Medium (37.34–58.66)	19	56.67
High (58.67–80)	9	30.00

Table 5 showed that extension personnel had strongly agreed that 'RKMP is useful in getting enough agro advisory system' (33.3%), to know locale specific information (30.0%), 'to know about improved cultivation practices' (10.0%) and 'to know weather-based information' (10.0%), whereas 30% of the extension personnel strongly disagreed with the statement that 'RKMP was not useful to adopt improved varieties/hybrids (30.0%), to know about pest management (30.0%), to know locale specific information (26.7%) and to know about weed management (23.3%)'. Based on perception and utility perception scores, the statements were

arranged in decreasing order, and rank order was arranged for each statement (Table 6).

Table 7 depicted that 51% of the farmers were mostly satisfied with the content adequacy followed by query-resolving facility (45.1%) and quality of information (43.9%). About 79% of the farmers were moderately satisfied with the readability/understandability of information provided through RKMP followed by timeliness of the information (70.7%). In the study, it was found that 24% of the farmers were least satisfied with the query-resolving facility of RKMP followed by overall services of RKMP (23%). The findings of the present study were found in harmony with the similar study conducted by Chauhan (2016) who observed that it was a mean to collect information on market prices of agricultural products.

Table 8 showed that 67% of the scientists were mostly satisfied with the 'content adequacy in RKMP' followed by overall services (53%) and query-resolving facility of

**Table 5: Perceived utility of information provided by RKMP as perceived by extension personnel (n = 30)**

Sl.No.	Statements	SA	A	N	DA	SDA	PS	UPI	Rank
1.	Useful to know locale specific information	6	21	2	3	10	136	86.67	1
2.	Useful to know weather-based information	4	2	22	7	9	117	82.01	2
3.	Useful to explore different market	10	9	3	5	4	109	70.67	3
4.	To know about improved cultivation practices	4	9	8	7	2	96	61.33	4
5.	Useful to know about weed management	10	2	9	2	2	91	54.01	5
6.	To know about pest management	3	3	8	10	19	90	54.00	6
7.	Useful to know about market price	10	2	3	7	5	86	53.33	7
8.	Not useful to know about improved varieties/hybrids	9	2	1	3	3	65	52.67	8
9.	Useful to get agro-advisory relevant to the farming system	3	7	2	6	3	64	49.33	9
10.	To know about disease management	1	3	2	10	3	46	36.01	10

SA = strongly agree, A = agree, N = neutral, DA = disagree, SDA = strongly disagree, PS = perception score, UPI = utility perception score.

**Table 6: Distribution of extension personnel on perceived utility of information provided by RKMP (n = 30)**

Categories	Respondents	
	Number	Per Cent
Low (16–37.33)	5	16.67
Medium (37.34–58.66)	16	53.33
High (58.67–80)	9	30.00

RKMP (50%). About 67% were moderately satisfied with the timeliness of the information followed by ‘readability’ (43%) and quality of information (26%). About 43% of the respondents were least satisfied with the quality of information and readability of the RKMP information.

Table 9 depicted that 73% of the extension personnel were strongly satisfied with the ‘timeliness of information provided by RKMP’ followed by overall services (63%) and content adequacy (60%). About 33% were moderately

satisfied with the quality of information followed by timeliness of the information provided (16%) and query-resolving facility of RKMP. About 40% were least satisfied with the ‘readability of RKMP and query-resolving facility’ (37%).

**CONCLUSION**

Any KM model will lose the sustainability if it has limitations in technology dissemination part. If a KM model has to be successful, the factors like comprehension of knowledge, utilising all the ICT tools, technology upgradation and dissemination, support of state department of agriculture and extension personnel need to be taken care of. The success of any KM model depends on knowledge generation, technology upgradation and technology dissemination. The present study was an attempt to observe the perceived utility and satisfaction of stakeholders about

**Table 7: Farmers’ satisfaction level about information provided by RKMP (n = 80)**

Sl.No	Statements	Most Satisfied		Moderately Satisfied		Least Satisfied	
		f	%	f	%	F	%
1.	Content adequacy in RKMP	41	51.3	29	36.3	10	12.5
2.	Timeliness of the information provided	20	24.4	57	70.7	2	2.4
3.	Quality of information	36	43.9	26	31.7	18	22.0
4.	Query-resolving facility of RKMP	37	45.1	23	28.0	20	24.4
5.	Readability of the RKMP	8	9.8	65	79.3	7	8.5
6.	Overall services of RKMP	13	43.3	60	33.3	07	23.3

**Table 8: Scientists’ satisfaction level about RKMP (n = 30)**

Sl.No	Statements	Most Satisfied		Moderately Satisfied		Least Satisfied	
		f	%	f	%	F	%
1.	Content adequacy in RKMP	20	66.7	3	10.0	7	23.3
2.	Timeliness of the information provided	6	20.0	20	66.7	4	13.3
3.	Quality of information	9	30.0	8	26.7	13	43.3
4.	Query-resolving facility of RKMP	15	50.0	5	16.7	10	33.3
5.	Readability of the RKMP	5	16.7	13	43.3	12	40.0
6.	Overall services of RKMP	16	53.3	4	13.3	10	33.3

**Table 9: Extension personnel’s satisfaction level about the RKMP (n = 30)**

Sl.No	Statements	Most Satisfied		Moderately Satisfied		Least Satisfied	
		f	%	f	%	F	%
1.	Adequate content in RKMP	18	60.0	4	13.3	8	26.7
2.	Timeliness of the information provided	22	73.3	5	16.7	3	10.0
3.	Quality of information	12	40.0	10	33.3	8	26.7
4.	Query-resolving facility of RKMP	14	46.7	5	16.7	11	36.7
5.	Readability of the RKMP	14	46.7	4	13.3	12	40.0
6.	Overall services of RKMP	19	63.3	4	13.3	7	23.3

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the information. Further, the utility of RKMP information by different stakeholders indicated that the different information provided by RKMP have different utility for the farmers, scientists and extension personnel. Majority of farmers strongly agreed that RKMP helped them to prevent the pest attack followed by highly relevant to their farming system. Majority of scientists strongly agreed that RKMP helped them to know about disease management followed by weed management. Majority of extension personnel had strongly agreed that RKMP was useful in getting enough agro-advisory system to know locale specific information and improved cultivation practices. About 67% of the scientists were mostly satisfied with the adequate content in RKMP followed by overall services and query-resolving facility of RKMP. Majority of extension personnel were strongly satisfied with the timeliness of information provided by RKMP followed by overall services and content adequacy. The results well evidenced that farmers, scientists and extension personnel perceived RKMP as a useful application to get the information about rice. Further, it shows that RKMP is accepted by all the stakeholders in general, but particularly, it is more acceptable among the scientists followed by extension personnel and farmers because when it comes to technology, ease of use, capability to use and advantages of the technology matters. Content adequacy, query-resolving facility and timeliness of information were the most satisfaction factors regarding RKMP. Agricultural portals are the way to bridge the information gap between user and providers. In the process of making portal, usability and content categorisation is needed. This study provides necessary actions and suitable modification for smooth functioning of RKMP portal.

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