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Knowledge level of Farmers about Improved Rice Cultivation Technology

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ABSTRACT

The study was conducted in Hanumangarh district of Rajasthan as the district contributes highest area and production of rice crop as compared to other district of Sriganganagar region. Three *panchayat samities* were selected from district having highest area under rice crop and demonstrations were conducted under MMA about improved package of practices of rice crop. The Department of Agriculture, Govt. of Rajasthan has conducted demonstration on improved package of practices of rice cultivation technology in these twelve villages under MMA scheme. All the respondents who had participated in demonstration on improved package of practices of rice cultivation technology were called as beneficiary. Equal numbers of non- beneficiary farmers, who did not participate in the demonstrations, from each selected villages were also selected to make the study comparable. In all 210 respondents were included for the study purpose out of which 50 per cent *i.e.* 105 were beneficiaries and remaining 105 non-beneficiaries. Data were collected by personal interview method. The results revealed that beneficiary farmers possessed more knowledge than the non-beneficiary farmers. The significant difference was observed in the knowledge level of beneficiary and non-beneficiary farmers.

Keywords: Knowledge, improved rice cultivation technology

INTRODUCTION

Rice is the most important cereal crop. India is the 2nd largest producer of rice in the world next to China having 43.97 mha area, 104.32 mt production and 2.3 t/ha productivity. In Rajasthan rice is grown in an area of 1,34,337 lakh hectares with a production of 2,53,360 lakh tonnes. The productivity of rice per unit area can be increased by adopting recommended scientific and sustainable management practices using a suitable high yielding varieties. Taking into account the above consideration, demonstration was conducted under MMA scheme on improved package of practices of rice cultivation for enhancing productivity of rice. The information regarding the level of knowledge would become the bench mark for scientists and field functionaries for preparing their future line of actions in order to upgrade the knowledge level of farmers, wherever they lack substantially.

METHODOLOGY

The present study was conducted in Sriganganagar region as the region contributes highest production and productivity of rice crop as compared to other regions of Rajasthan. Hanumangarh district ranks 1st in area and production of rice crop as compared to other rice growing district of Sriganganagar region. Three *panchayat samities* of Hanumangarh district were chosen for study purpose as Demonstration on improved package of practices of rice cultivation technology under MMA scheme were conducted in these three *panchayat samities.* Twelve villages from three *panchayat samities* where demonstrations were conducted under MMA scheme regarding improved package of practices of rice cultivation were selected for investigation.

All the respondents who had participated in demonstration on improved package of practices of rice cultivation technology under MMA scheme were included for study as beneficiary farmers. Further, villagewise list of rice growers who had not participated in any demonstration of rice was prepared. From the list, equal number of respondents (105) were selected randomely. Thus, the total sample size from the twelve villages were 210 rice growers. The knowledge test was specially developed to measure the level of knowledge of farmers about improved package of practices of rice cultivation. To gather the information related to knowledge level of respondents regarding rice cultivation, eight major practices of rice cultivation were included. One score was assigned to each correct answer

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and zero score to each incorrect answer.

RESULTS AND DISCUSSION

Distribution of rice growing farmers according to their level of knowledge

The knowledge of farmers about rice cultivation technology was assessed. For this, the farmers were divided into three categories of level of knowledge on the basis obtained mean score and standard deviation. The data related to the knowledge of both the category of farmers *i.e.* beneficiary and non-beneficiary indicated that the farmers' knowledge concerning rice cultivation technology had a wide dispersion.

Table 1: Distribution of rice growers according to their level of knowledge

Level of knowledge	Beneficiary farmers (n=105)		Non-Beneficiary farmers (n=105)		Pooled (n=210)	
	f	%	f	%	f	%
Low(<56 score)	16	15.24	26	24.76	42	20.00
Medium(56-68 score)	59	56.19	68	64.76	127	60.48
High(>68 score)	30	28.57	11	10.48	41	19.52

f= frequency, % = percentage, n = number of respondents

On the basis of knowledge scores obtained from the farmers, they were categorized into three category indicating their frequency (f) and percentage (%) in each category.

The data presented in table 1 indicated that a majority of the beneficiary farmers, (56.19%), possessed medium level of knowledge followed by high and low level of knowledge category with 28.57 per cent and 15.24 per cent, respectively. Data presented in table 1 further indicated that a majority of the non-beneficiary farmers (64.76%) possessed medium level of knowledge, followed by low level of knowledge 24.76 per cent. Only 10.48 per cent non-beneficiary rice growing farmers possessed high level of knowledge.

The data presented in table-1 revealed that a majority of the rice growing farmers *i.e.* 60.48 per cent had medium level of knowledge followed by low and high knowledge category with 20.00 and 19.52 per cent, respectively. Comparative view of data pertaining to these three categories of farmers clearly showed upward movement in knowledge of the farmer after conduction of the demonstration.

Knowledge of farmers about improved package of practice of rice cultivation technology

The knowledge of beneficiary and non-beneficiary farmers concerning improved package of practices of rice cultivation technology was measured in terms of Mean Percent Score (MPS). All the eight important practices of rice cultivation technology were incorporated to appraise the knowledge of rice growers.

Table 2: Level of knowledge of farmers about improved package of practices of rice cultivation technology

Package of practices	Beneficiary Farmers (n=105)		Non-Beneficiary Farmers (n=105)		Pooled (n=210)	
	MPS	Rank	MPS	Rank	MPS	Rank
Field preparation and transplanting	82.99	I	81.36	I	82.18	I
Use of high yielding varieties	76.71	II	71.29	III	74.00	III
Seed treatment & nursery raising	70.00	VII	65.63	IV	67.82	VI
Manure and fertilizer application	74.39	IV	65.29	V	69.84	IV
Weed management	71.14	VI	64.95	VI	68.05	V
Irrigation management	73.33	V	61.67	VII	67.50	VII
Plant protection measures	61.36	VIII	56.78	VIII	59.07	VIII
Harvesting and storage	75.24	III	73.45	II	74.35	II
Overall	**73.15**		**67.55**		**70.35**	

r_s=Rankcorrelation

** = Significant at 1% level of significance

r_s - 0.81

t= 3.38**

The data presented in table 2 shows that beneficiary farmers possessed very good knowledge (above 75 MPS) regarding field preparation & transplanting, use of high yielding varieties and harvesting & storage with 82.99, 76.71 and 75.24 MPS, respectively. Similarly, they had good amount of knowledge (above 65 MPS) regarding manure & fertilizer application, irrigation management and weed management with 74.39, 73.33 and 71.14 MPS, respectively. The beneficiary farmers possessed least knowledge regarding plant protection measures with

61.36 MPS. Data of table 2 also indicated that the non-beneficiary farmers had very good amount of knowledge in one practice only *i.e.* field preparation and transplanting with 82.36 MPS. They had good knowledge (above 65 MPS) in the package of practices like harvesting & storage, use of high yielding varieties, seed treatment & nursery raising and manure and fertilizer application with 73.45, 71.29, 65.63 and 65.29 MPS, respectively. The non-beneficiary farmers possessed relatively less knowledge in practices like irrigation management, manure & fertilizer application, weed management and plant protection measures ranging from 56.78 to 61.67 MPS. If we look at table 2, irrespective of beneficiary and non-beneficiary farmers, data shows that rice growers had very good amount of knowledge (above 75 MPS) in practice like, field preparation and transplanting with 82.18 MPS, respectively. Farmers possessed good amount of knowledge (above 65 MPS) in the cultivation practices of rice like harvesting & storage, high yielding varieties, manure & fertilizer application, weed management, seed treatment & nursery raising and irrigation management with II, III, IV, V, VI and VII rank respectively. They possessed least knowledge regarding plant protection measures with 59.07 MPS.

An effort was also made to determine the relationship between the ranks assigned by beneficiary and non-beneficiary rice growing farmers by applying rank correlation test. The value of rank correlation (r_s) was 0.81 which shows positive correlation, the significance of r_s was tested by 't' test and it was observed that calculated 't' value (3.38) was higher than its tabulated value. This leads to conclusion that there was a similarity in the rank assignment pattern of knowledge possessed by beneficiary and non-beneficiary rice growers about improved package of practices of rice cultivation technology, though there was difference in magnitude of Mean Percent Score of beneficiary and non-beneficiary farmers.

Comparison of knowledge among beneficiary and non-beneficiary rice growers.

Table 3: Comparison of knowledge between beneficiary and non-beneficiary farmers regarding rice cultivation technology

Package of practices	Beneficiary Farmers (n=105)		Non-Beneficiary Farmers (n=105)		'Z' Value
	Mean ±	S.D.	Mean ±	S.D.	
Field preparation and transplanting	5.81	0.62	5.68	0.46	1.73^{NS}
Use of high yielding Varieties	15.34	1.45	14.37	1.43	4.88**
Seed treatment & nursery raising	8.4	0.94	7.9	0.67	4.44**
Manure and fertilizer application	6.69	0.72	5.89	0.62	8.63**
Weed management	7.11	1.27	6.49	1.12	3.75**
Irrigation management	2.93	0.48	2.32	0.47	9.30**
Plant protection measures	12.89	1.41	12.03	1.39	4.45**
Harvesting and storage	6.01	0.73	5.88	0.6	1.41^{NS}
Overall	**8.15**	**0.95**	**7.57**	**0.85**	**4.82****

NS = Non-significant, ** = Significant at 1% level of significance

The data related to level of knowledge of both beneficiary and non-beneficiary farmers incorporated in table 3 shows that calculated 'Z' value was higher than the tabulated value at 1 per cent level of significance in six package of practices of rice cultivation i.e. use of high yielding varieties, seed treatment & nursery raising, manure & fertilizer application, weed management, irrigation management and plant protection measures. This showed that in six practices of rice cultivation, beneficiary and non-beneficiary farmers had wide difference in their knowledge level.

It means that beneficiary farmers possessed more knowledge as compared to the non-beneficiary farmers in the above mentioned six package of practices as well as overall knowledge of beneficiary and non-beneficiary farmers regarding rice cultivation practices. In remaining two cultivation practices of rice *viz.* field preparation & transplanting and harvesting and storage the value of 'z' test was found non-significant. This means that there is no difference in the knowledge of both categories of rice growers. This might be due to both categories of farmers doing there practices at similar type. The higher knowledge level of improved package of practices of rice production among the beneficiary farmers in comparison to the non-beneficiary farmers might be due to the fact that beneficiary farmers had participated in the demonstration programme conducted by the state department of agriculture, Hanumangarh and the participants were provided with necessary guidance and technical knowledge concerning rice cultivation technology whereas, the demonstrations were not imparted to the non-beneficiary rice growers and thus got deprived of necessary guidance and technical knowledge regarding rice cultivation technology. This might have resulted in high level of knowledge of beneficiary farmers than that of non-beneficiary farmers.

CONCLUSION

It can be concluded from the above findings that a majority of beneficiary farmers (56.19%), non-beneficiary farmers (64.76%) and overall farmers (60.48%) had medium level of knowledge. More number of beneficiary farmers possessed high knowledge level as compared to non-beneficiary farmers regarding rice cultivation technology. About 50 per cent of beneficiary farmers possessed medium level of knowledge followed by high and low level of knowledge *i.e.* 28.57 and 15.24 per cent, respectively. In case of non-beneficiary farmers, majority (64.76%) belonged to medium category followed by low (24.76%) and high category (10.48%) of knowledge level regarding rice cultivation technology. As a whole, majority of the rice growers (60.48%) possessed medium level of knowledge followed by high level (20.00%) and low level (19.52%) of knowledge, respectively. The beneficiary and non-beneficiary farmers possessed comparatively high knowledge about field preparation and transplanting and harvesting & storage. They had less knowledge regarding plant protection measures and weed management. The knowledge possessed by beneficiary farmers (73.15 MPS) was higher than the knowledge possessed by the non-beneficiary farmers (67.55 MPS). There was a similarity between pattern of ranks assignment by beneficiary and non-beneficiary farmers regarding knowledge of rice cultivation technology. Further, there was practice wise as well as overall significant difference in the knowledge level of beneficiary and non-beneficiary farmers.

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