

RESEARCH ARTICLE :

Extent of adoption of improved package of practices of rice cultivation technology by the beneficiary and non-beneficiary farmers in Hanumangarh district of Rajasthan

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KEY WORDS :

Adoption,
Demonstration,
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SUMMARY : The study was conducted in Hanumangarh district of Rajasthan as the district had highest area and production of rice crop as compared to other district of Sri Ganganagar 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 were rice growers. Data were collected by personal interview method. Various statistical measures *viz.*, chi- square test, ‘z’ test, ‘t’ test and spearman’s rank correlation tests were used for analyzing the data. The beneficiary farmers possessed more knowledge than the non-beneficiary farmers. There existed similarity in rank assignment pattern and a significant difference in the knowledge level of beneficiary and non-beneficiary farmers.

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BACKGROUND AND OBJECTIVES

Rice is 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 134337 lakh hectares with a production of 253360 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 variety. 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.

RESOURCES AND METHODS

The present study was conducted in Sri Ganganagar region as the region had 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 Sri Ganganagar 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 had been conducted only 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 purpose and called as beneficiary farmers. Further, village wise list of rice growers who had not participated in any benefit regarding demonstration of improved package of practices of rice cultivation technology was prepared. From the list, equal number of respondents that of beneficiary were selected randomly and called as non-beneficiary respondents. Thus, the total sample size from the twelve villages was 210 rice growers. To measure the extent of adoption, score standardized by the 10 experts on the basis of difficulty of adoption of recommended rice cultivation technology for each practice, was adopted. The maximum possible score one could obtain was 100. Finally the responses were counted and converted into mean and mean per cent score.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well

as discussions have been summarized under following heads:

Distribution of rice growers according to their extent of adoption :

Adoption is a mental process. In the modern era, many new things are being invented by our agricultural scientists but all the innovations are not being adopted by many of the members of social system. Adoption of an innovation depends on many factors *viz.*, awareness and knowledge of adopters, innovativeness characteristics, perceived attributes of innovation. It is generally assumed that if an individual has more knowledge about different aspects of technologies he is likely to adopt the innovations with higher speed.

The adoption scores obtained by the beneficiary and non-beneficiary farmers were found to have wide dispersion. In order to have a closer look, farmers were divided into three categories and data were reset to find out the frequency and percentage in each category. The data have been reported in Table 1.

Data presented in the Table 1 shows that, in case of beneficiary rice growers, majority of them (65.71%) had medium level of adoption followed by high (22.86%) and low adoption category (11.43%), respectively. Further, in case of non-beneficiary farmers, majority of the farmers (74.29%) belonged to medium adoption category followed by low adoption category (18.09%). Only (7.62%) non-beneficiary rice growers fell in high adoption category concerning rice cultivation technology.

If we look at the data presented in the Table 1 as a whole irrespective of type of farmers *i.e.* beneficiary and non-beneficiary farmers, the data revealed that only 32 (15.24%) farmers were high adopters, 147 (70.00%) farmers were medium level adopters and 31 (14.76%) farmers were in the category of low adoption of rice cultivation practices in the study area.

The extent of adoption of rice cultivation practices among beneficiary and non-beneficiaries rice growers :

Table 2 shows that beneficiary rice growers had very good adoption level (>69 MPS) regarding practices like use of high yielding varieties, harvesting and storage and field preparation and transplanting with 100, 70.95 and 70.71 MPS, respectively. Beneficiary rice growing farmers had good adoption level (>60 MPS) regarding practices like weed management, seed treatment and

nursery raising, irrigation management and manure and fertilizer application with 69.21, 67.56 and 61.71 MPS, respectively. They had low adoption level in plant protection measures with 59.16 MPS. In case of non-beneficiary rice growers, they possessed high adoption level regarding practices like use of high yielding varieties with 100 MPS. They had low adoption level regarding irrigation management, manure and fertilizer application and plant protection measures with 56.83, 56.00 and 54.36 MPS, respectively. It was witnessed that less of the beneficiary as well as non-beneficiary farmers had adopted the recommended plant protection measures and manure and fertilizer application in rice cultivation.

If we look at the data presented in the Table 2 irrespective of beneficiary and non-beneficiary farmers, then it is observed that respondents had very good adoption level regarding use of high yielding varieties, field preparation and transplanting and harvesting and storage with 100, 69.76 and 69.52 MPS, respectively. They had good amount of adoption level regarding weed management, seed treatment and nursery raising and irrigation management with 65.87, 65.47 and 60.48 MPS followed by low adoption level in practices like manure and fertilizer application and plant protection measures with 58.86 and 56.76 MPS, respectively.

The overall extent of adoption of the beneficiary

Table 1 : Distribution of rice growers according to their extent of adoption

Sr. No.	Extent of adoption	Beneficiary farmers (n=105)		Non-beneficiary farmers(n=105)		Pooled (n=210)	
		f	%	f	%	f	%
1.	Low(<60 score)	12	11.43	19	18.09	31	14.76
2.	Medium (60-74 score)	69	65.71	78	74.29	147	70.00
3.	High(>74 score)	24	22.86	8	07.62	32	15.24

f = Frequency, %= Percentage, n= Number of respondents

Table 2 : Extent of adoption of beneficiary and non-beneficiary farmers about rice cultivation technology

Sr. No.	Package of practices	Beneficiary farmers (n=105)		Non-Beneficiary farmers(n=105)		Pooled (n=210)	
		MPS	Rank	MPS	Rank	MPS	Rank
1.	Field preparation and transplanting	70.71	III	68.81	II	69.76	II
2.	Use of high yielding varieties	100.00	I	100.00	I	100.00	I
3.	Seed treatment and nursery raising	67.56	V	63.38	IV	65.47	V
4.	Manure and fertilizer application	61.71	VII	56.00	VII	58.86	VII
5.	Weed management	69.21	IV	62.54	V	65.87	IV
6.	Irrigation management	64.13	VI	56.83	VI	60.48	VI
7.	Plant protection measures	59.16	VIII	54.36	VIII	56.76	VIII
8.	Harvesting and storage	70.95	II	68.10	III	69.52	III
	Overall	70.43		66.25		68.34	

r_s = Rank correlation

** indicates significance of value at P=0.01 level of significance

rs= 0.95
t= 7.65

Table 3 : Practice wise comparison of extent of adoption between beneficiary and non-beneficiary farmers regarding rice cultivation technology

Sr. No.	Package of practices	Beneficiary farmers (n=105)		Non-beneficiary farmers (n=105)		'Z' value
		Mean ±	S.D.	Mean ±	S.D.	
1.	Field preparation and transplanting	12.1	1.53	11.78	1.79	1.39 ^{NS}
2.	Use of high yielding varieties	9	0	9	0.00	∞**
3.	Seed treatment and nursery raising	8.78	1.15	8.1	1.08	4.42**
4.	Manure and fertilizer application	6.79	1.22	6.35	1.68	2.17*
5.	Weed management	8.3	1.32	7.62	1	4.21**
6.	Irrigation management	7.69	0.72	7.08	1.11	4.72**
7.	Plant protection measures	8.87	1.19	8.15	0.78	5.19**
8.	Harvesting and storage	7.8	1.01	7.62	1.28	1.13 ^{NS}
	Overall	8.67	1.02	8.21	1.09	3.32**

NS = Non-significant, ** indicates significance of value at P=0.01 level of significance

farmers (70.43 MPS) was higher than the non-beneficiary farmers (66.25 MPS). The value of calculated rank correlation (r_s) was 0.95 which is positive and significant at 1 per cent level of significance, leading to conclusion that there was a similarity in rank assignment pattern of adoption level of beneficiary and non-beneficiary farmers about rice cultivation technology, though there was a difference in the magnitude of MPS of beneficiary and non-beneficiary farmers.

Practice wise comparison of extent of adoption between beneficiary and non-beneficiary rice growers about rice cultivation technology :

Table 3 elucidates that among eight important packages of practices of rice cultivation, two practices *i.e.* field preparation and transplanting and harvesting and storage showed non-significant difference in the adoption level of beneficiary and non-beneficiary farmers. In remaining six practices of rice cultivation, there was a highly significant difference in the adoption level of beneficiary and non-beneficiary farmers as their calculated 't' value was higher than the tabulated 't' value at 1 per cent level of significance. Overall calculated 'Z' value was higher than the tabulated value at 1 per cent level of significance leading to the conclusion that there was a noteworthy difference in extent of adoption between beneficiary and non-beneficiary farmers regarding rice cultivation technology.

Thus, this is proved evidently that the adoption of rice cultivation practices was more among beneficiary farmers as compared to non-beneficiary farmers. Due to adoption of improved cultivation practices of rice by beneficiary farmers, beneficiary farmers reported higher average yield as compared to average yield of rice among non-beneficiary farmers. The significant difference between beneficiary and non-beneficiary farmers about adoption of rice cultivation practices in the study was not unexpected. It might be due to the fact that beneficiary farmers remained in continuous touch with the extension personnel throughout the session of the demonstration so they might have acquired sufficient skills pertaining to rice cultivation practices. Thus they are more likely to practice the learnt skills in their fields. Similar studies

were also made by several workers (Chandan and Sarmah, 2002; Kasarlawar *et al.*, 2009; Mankar *et al.*, 2004 and Prasad *et al.*, 2008).

Conclusion :

It can be concluded from the above findings that majority of the beneficiary farmers (65.71%), non-beneficiary farmers (74.29%) and overall farmers (70%) had medium extent of adoption. It was also observed that more number of beneficiary farmers acquired high extent of adoption as compared to non-beneficiary farmers regarding rice cultivation technology. Extent of adoption of beneficiary farmers (70.43 MPS) was higher than the extent of adoption of non-beneficiary farmers (66.25 MPS). There was a similarity between pattern of ranks assignment by beneficiary and non-beneficiary farmers regarding extent of adoption of rice cultivation technology. There was a practice wise as well as overall significant difference in the extent of adoption of improved package of practices of rice cultivation between beneficiary and non-beneficiary farmers.

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