

RESEARCH ARTICLE :

Adoption of recommended interventions of wheat among the respondents of RKVY

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ARTICLE CHRONICLE :

Received :

15.12.2016;

Revised :

07.01.2017;

Accepted :

14.01.2017

SUMMARY : The present study was conducted in which two tribal (Jhadol and Sarada) and two non-tribal (Bhinder and Mavli) panchayat samities of Udaipur district of Rajasthan. Four beneficiary villages and two non-beneficiary villages from each selected panchayat samiti were taken and 10 respondents were selected randomly from each selected village for the study. Data were collected through pre-structured interview schedule. The findings revealed that majority of beneficiary and non-beneficiary farmers belonged to medium adoption group. It was found that there was a significant difference in level of adoption between beneficiary and non-beneficiary farmers about recommended wheat interventions.

How to cite this article : Kumari, Sunita and Sharma, F.L. (2017). Adoption of recommended interventions of wheat among the respondents of RKVY. *Agric. Update*, 12(1): 122-128; DOI : 10.15740/HAS/AU/12.1/122-128.

KEY WORDS :

Adoption, interventions, Demonstration, Seed minikits, Beneficiary respondents, Non-beneficiary respondents, RKVY

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BACKGROUND AND OBJECTIVES

The Rastriya Krishi Vikas Yojana (RKVY) was launched in the year 2007 with the specific aims at achieving 5.5 per cent annual growth in the agriculture sector during 12th plan period by ensuring a holistic development of agriculture and allied sectors.

The scheme is essentially a State Plan Scheme that seeks to provide the States and Territories of India with the autonomy to draw up plans for increased public investment in agriculture by incorporating information on local requirements, geographical/climatic conditions, available natural resources/technology and cropping patterns in their districts so as to significantly increase the productivity of agriculture and its allied sectors and eventually maximize the returns of farmers

in agriculture and its allied sectors.

Initially, it was decided that a sum of Rs. 5875 crore would be released by the Central Government every year under the 11th Five Year Plan and Rs. 1500 crore was allocated in 2007-08. During the first three years of the implementation of the RKVY, an amount of Rs. 8462.11 crore, which is roughly 33.00 per cent of the total allocation under the RKVY of Rs. 25000 crore was released to states for this programme. Budget 2012-13 provides Rs. 9217.00 crore for this scheme which included two new sub-components, namely: (a) Special initiative for pulse and oilseed development in selected pulses /oilseed growing villages in rainfed areas as supplementary programmes specially targeted to rainfed areas and will be implemented on same parameter as ongoing

programmes for oilseed and pulses. (b) Scheme to bridge yield gap in agriculture in east India. Allocation of budget in 2013-14 and 2014-15 are Rs. 9954.02 crore and Rs. 9954 crore, respectively.

RESOURCES AND METHODS

The present paper presents the data gathered in a randomly selected sample of the beneficiary and non-beneficiary farmers towards recommended interventions of wheat crop introduced under RKVY programme in two tribal (Jhadol and Sarada) and two non-tribal (Bhinder and Mavli) panchayat samities of Udaipur district of Rajasthan. The 160 beneficiary and 80 non-beneficiary farmers were selected for the study. To measure the extent of adoption of respondents, a three-point continuum scale *viz.*, fully adoption, partially adoption and not at all was developed for this study. The scores 2, 1, and 0 were given according to their responses, respectively. Adoption scale of wheat crop had 24 items. Equal weightage was given to each item. The possible maximum score one could obtain was 48. Finally the adoption index was calculated by the following formula:

$$\text{Adoption index} = \frac{\text{Total adoption score obtained by respondents}}{\text{Maximum possible score}} \times 100$$

The formula was applied for all the aspects, which helped in calculating adoption index. The mean and standard deviation of all the respondents' adoption score was computed for classifying the adoption in low, medium and high categories. To determine the extent of adoption of respondents about each major aspect mean per cent score was worked out and ranked accordingly. Besides, to find out the significance of difference in adoption between different categories of respondents, Z-test was applied and conclusions were drawn accordingly.

OBSERVATIONS AND ANALYSIS

The results obtained from the present study as well as discussions have been summarized under following heads:

Distribution of respondents according to their level of adoption about wheat interventions :

Data presented in Table 1 depict that 59.17 per cent of the total respondents were in the medium level of adoption group, whereas, 16.25 per cent respondents

were in high level of adoption group and remaining 24.58 per cent wheat growers to be observed in the low level of adoption about recommended wheat interventions.

Further, among the categories of wheat growers, it was observed that 65.00 per cent beneficiary respondents and 47.50 per cent non-beneficiary respondents were in medium level of adoption category. Whereas, 15.00 per cent beneficiary respondents and 43.75 per cent non-beneficiary respondents were noted in the low level of adoption category. Likewise, 20.00 per cent and 8.75 per cent beneficiary and non-beneficiary respondents possessed high level of adoption, respectively about recommended wheat interventions. The similar findings have been reported by Geengar (2006) and Kumar (2012).

Intervention-wise extent of adoption among wheat growers:

The interventions related to seed minikits, field demonstrations, farm mechanization, micro-nutrients and plant protection equipments were introduced under Rastriya Krishi Vikash Yojana in the study area. Therefore, an effort was made to assess the intervention-wise extent of adoption among wheat growers. The results of the same have been given in subsequent tables.

Adoption of seed minikits among the respondents in wheat cultivation :

Data depicted in Table 2 indicate that the extent of adoption of minikit seed namely Raj-4037 and Lok-1 variety of wheat among beneficiary respondents was recorded 88.10 and 90.93 MPS with ranked second and first, respectively, while in case of non-beneficiary respondents it was 38.12 and 34.37 MPS with ranked third and sixth, respectively. The extent of adoption of recommended sowing time of Raj-4037 variety, it was found that beneficiary and non-beneficiary respondents had extent of adoption was 85.00 and 36.63 MPS, respectively. While, in case of sowing time of Lok-1 variety of wheat, it was observed that 84.65 and 28.75 MPS extent of adoption among beneficiary and non-beneficiary respondents, respectively. It was ranked sixth and ninth by the beneficiary and non-beneficiary respondents, respectively.

Further analysis of Table 2 shows that the extent of adoption regarding recommended seed rate of Raj-4037 and Lok-1 variety of wheat among beneficiary and non-

beneficiary respondents was 81.87 and 81.18 MPS and 40.00 and 28.25 MPS, respectively. It was noted that more than eighty per cent beneficiary respondents were adopting recommended row to row spacing for Raj-4037 and Lok-1 variety of wheat crop. While, in case of non-beneficiary respondents it was around thirty MPS. Regarding adoption of recommended depth of sowing of Raj-4037 and Lok-1 variety of wheat it was found that beneficiary and non-beneficiary respondents had 84.37 and 41.87 MPS and 86.87 and 31.75 MPS, respectively.

Form above discussion, it can be concluded that the most of the beneficiary respondents possessed more adoption than non-beneficiary respondents in all aspects of Raj-4037 and Lok-1 variety of wheat crop. It can be concluded that the extent of adoption in beneficiary respondents was 81.18 to 90.93 MPS, while in case of non-beneficiary respondents the extent of adoption was 28.25 to 41.87 MPS in all aspects about seed minikits of wheat crop. To improve the more extent of adoption in both the categories of respondents, intensive training programme should be organized timely and should be location specific for the study area. The present findings

are in accordance with the findings of Patel and Tanwar (2004), Samota (2011) and Kumar (2012).

Adoption of field demonstration practices among the respondents in wheat cultivation :

Data presented in Table 3 indicate that the extent of adoption of Raj-4037 variety of wheat among beneficiary respondents was recorded 87.81 MPS, while in case of non-beneficiary respondents it was 37.50 MPS. The extent of adoption of the complete package of practices of Raj-4037 variety of wheat, it was found that beneficiary and non-beneficiary respondents had 87.50 and 38.75 MPS adoption, respectively. It was observed that the adoption of thio-urea at proper stage was 88.43 and 26.25 MPS among beneficiary and non-beneficiary respondents, respectively.

Further analysis of table clearly shows that the tribal and non-tribal area's beneficiary respondents had higher adoption level as compare to tribal and non-tribal area's non-beneficiary respondents. Whereas, in case of beneficiary respondents tribal area's respondents possessed lower adoption of field demonstrations of

Table 1 : Distribution of respondents according to their adoption level of wheat crop

(n =240)

Sr. No.	Category	Beneficiary						Non-beneficiary						Grand total	
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total			
		f	%	f	%	f	%	f	%	f	%	f	%	f	%
1.	Low (< 21.06)	15	18.75	9	11.25	24	15.00	19	47.50	16	40.00	35	43.75	59	24.58
2.	Medium (21.06 to 45.34)	53	66.25	51	63.75	104	65.00	18	45.00	20	50.00	38	47.50	142	59.17
3.	High (> 45.34)	12	15.00	20	25.00	32	20.00	3	7.50	4	10.00	7	8.75	39	16.25
	Total	80	100	80	100	160	100	40	100	40	100	80	100	240	100

f = Frequency, % = per cent

Table 2 : Adoption level of the respondents regarding seed minikits of wheat crop

(n =240)

Sr. No.	Practices	Beneficiary						Non-beneficiary					
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total	
		MPS	R	MPS	R	MPS	R	MPS	R	MPS	R	MPS	R
1.	Adoption of Raj-4037 variety of wheat	86.20	III	90.00	IV	88.10	II	43.75	IV	32.50	VI	38.12	III
2.	Adoption of Lok-1 variety of wheat	86.87	I	95.00	I	90.93	I	30.00	VI	38.75	III	34.37	VI
3.	Recommended sowing time of Raj-4037	78.12	VIII	91.87	III	85.00	V	41.25	V	32.00	VII	36.63	V
4.	Recommended seed rate of Raj-4037	75.00	X	88.75	VII	81.87	IX	48.75	II	31.25	IX	40.00	II
5.	Recommended spacing of Raj-4037	82.50	V	92.50	II	87.50	III	45.00	III	31.00	X	38.00	IV
6.	Recommended depth of sowing of Raj-4037	79.37	VII	89.37	V	84.37	VIII	50.00	I	33.75	V	41.87	I
7.	Recommended sowing time of Lok-1	80.00	VI	89.30	VI	84.65	VI	22.50	VIII	35.00	IV	28.75	IX
8.	Appropriate seed rate of Lok-1	78.00	IX	84.37	IX	81.18	X	25.00	VII	31.50	VIII	28.25	X
9.	Recommended spacing of Lok-1	85.62	IV	83.12	X	84.47	VII	21.25	IX	41.25	II	31.25	VIII
10.	Recommended depth of sowing of Lok-1	86.25	II	87.50	VIII	86.87	IV	20.00	X	47.50	I	31.75	VII
	Total	81.79		89.18		85.48		34.21		35.45		34.83	

MPS = Mean per cent score, R = Rank

wheat crop than non-tribal area's beneficiary respondents. It meant that beneficiary respondents had relatively more adoption as compared with non-beneficiary respondents regarding field demonstrations of wheat crop.

From the above discussion, it can be concluded that the extent of adoption in beneficiary respondents was 87.50 to 88.43 MPS, while in case of non-beneficiary respondents the extent of adoption was 26.25 to 38.75 MPS in all the aspects of field demonstrations. The similar findings have been reported by Gupta *et al.* (2004) and Samota (2011).

Adoption of micro-nutrients among the respondents in wheat cultivation :

Data presented in Table 4 reveal that the extent of application of gypsum at proper stage in wheat crop

among beneficiary respondents was recorded 86.25 MPS, while in case of non-beneficiary respondents it was 33.75 MPS. It was ranked third by the beneficiary and non-beneficiary respondents.

The extent of adoption of recommended dose of gypsum, it was found that beneficiary and non-beneficiary respondents had 87.50 and 38.12 MPS, respectively. It was ranked second by beneficiary and non-beneficiary respondents.

Further analysis of Table 4 shows that the extent of adoption regarding ZnSO₄ at right stage among beneficiary and non-beneficiary respondents was 83.12 and 32.50 MPS, respectively. It was noted that the beneficiary respondents possessed more adoption comparatively non-beneficiary respondents. The extent of adoption regarding recommended dose of ZnSO₄ was 88.43 and 38.75 MPS among the beneficiary and non-beneficiary wheat

Table 3: Adoption level of the respondents regarding field demonstrations of wheat crop (n=240)

Sr. No.	Practices	Beneficiary						Non-beneficiary					
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total	
		MPS	R	MPS	R	MPS	R	MPS	R	MPS	R	MPS	R
1.	Adoption of Raj-4037 variety of wheat	83.12	III	92.50	I	87.81	II	40.00	I	35.00	II	37.50	II
2.	Use of complete package of practices of wheat	85.60	II	89.37	III	87.50	III	37.50	II	40.00	I	38.75	I
3.	Application of thio-urea at proper stage of wheat	85.62	I	91.25	II	88.43	I	22.50	III	30.00	III	26.25	III
	Total	84.79		91.04		87.91		33.33		35.00		34.16	

MPS = Mean per cent score, R = Rank

Table 4 : Adoption level of the respondents regarding micro-nutrients application in wheat crop (n=240)

Sr. No.	Practices	Beneficiary						Non-beneficiary					
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total	
		MPS	R	MPS	R	MPS	R	MPS	R	MPS	R	MPS	R
1.	Application of gypsum at proper stage	83.12	III	84.37	IV	86.25	III	37.50	II	30.00	IV	33.75	III
2.	Adoption of recommended dose of gypsum	85.62	I	88.75	II	87.50	II	40.00	I	36.25	II	38.12	II
3.	Using ZnSO ₄ at right stage	80.00	IV	86.25	III	83.12	IV	33.75	III	31.25	III	32.50	IV
4.	Adoption of recommended dose of ZnSO ₄	84.37	II	92.50	I	88.43	I	30.00	IV	37.50	I	38.75	I
	Total	84.68		87.96		86.32		35.31		36.25		35.78	

MPS=Mean per cent score, R = Rank

Table 5 : Adoption level of the respondents regarding farm mechanization of wheat crop (n= 240)

Sr. No.	Practices	Beneficiary						Non-beneficiary					
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total	
		MPS	R	MPS	R	MPS	R	MPS	R	MPS	R	MPS	R
1.	Adoption of seed-cum-fertilizer drill	87.50	II	85.62	I	86.56	II	30.00	II	32.50	III	31.25	II
2.	Using rotavator for pulverizing the soil/land	83.75	I	90.62	III	87.18	III	33.75	I	36.25	I	35.00	I
3.	Adoption of Multi-Crop Thresher (MCT) for wheat crop	81.25	I	85.62	II	83.43	I	22.50	III	35.00	II	28.75	III
	Total	84.16		87.29		85.72		28.75		34.58		31.66	

MPS =Mean per cent score, R = Rank

growers, respectively. This aspect was ranked first by beneficiary and non-beneficiary respondents.

From the above discussion, it can be concluded that the extent of adoption in beneficiary respondents was 83.12 to 88.43 MPS, while in case of non-beneficiary respondents the extent of adoption was 32.50 to 38.75 MPS in all the aspects about micro-nutrients. Data clearly reveals that beneficiary respondents were adopting more recommended micro-nutrients with their right doses at right stages than non-beneficiary respondents. It means there was significant impact of RKVY in relation to adoption of micro-nutrients in wheat cultivation. Similar findings have been reported by Samota (2011).

Adoption of farm mechanization in wheat cultivation by the respondents :

Data presented in Table 5 indicate that the extent of adoption of seed-cum-fertilizer drill among beneficiary respondents was recorded 86.56 MPS, while in case of non-beneficiary respondents it was 31.25 MPS. It was ranked second by beneficiary and non-beneficiary respondents. It was clear that majority of beneficiary respondents were using seed cum fertilizer drill for sowing of wheat in the study area.

The extent of adoption of rotavator for pulverizing of soil, it was found that beneficiary and non-beneficiary respondents had 87.18 and 35.00 MPS with ranked third and first, respectively. The adoption about multi-crop thresher was 83.43 and 28.75 MPS with ranked first and third by beneficiary and non-beneficiary respondents, respectively.

From the above discussion, it can be concluded that the extent of adoption in beneficiary respondents was 83.43 to 87.18 MPS, while in case of non-beneficiary respondents the extent of adoption was 28.75 to 35.00 MPS in all the aspects about farm mechanization. It

means that there was positive impact of RKVY in adoption of farm mechanization practices among beneficiary respondents. The present findings are supported by the findings of Kothari (2000) and Solanki (2001).

Adoption of plant protection equipments among the respondents in wheat cultivation :

Data presented in Table 6 indicate that the extent of adoption of knapsack hand sprayer among beneficiary respondents and non-beneficiary respondents was recorded 87.50 and 39.37 MPS, respectively. It was ranked second by both the categories. The extent of adoption of recommended insecticides, it was found that beneficiary and non-beneficiary respondents had 86.25 and 42.50 MPS adoption, respectively. It was observed that the beneficiary respondents have more adoption of recommended insecticides comparatively non-beneficiary respondents.

The extent of adoption of duster for dusting the chemicals, it was found that beneficiary and non-beneficiary respondents had 88.12 and 33.75 MPS adoption, respectively. It was ranked first by beneficiary and fourth by non-beneficiary respondents.

Further analysis of Table 6 shows that the extent of adoption regarding recommended fungicides, their concentration and time of application among beneficiary and non-beneficiary respondents was 85.00 and 37.50 MPS, respectively. It was ranked fourth by beneficiary and third by non-beneficiary respondents.

From the above discussion, it can be concluded that the extent of adoption in beneficiary respondents was 85.00 to 88.12 MPS, while in case of non-beneficiary respondents the extent of adoption was 33.75 to 42.50 MPS in all the aspects about plant protection equipments.

Table 6 : Adoption level of the respondents regarding plant protection equipment of wheat crop (n =240)

Sr. No.	Practices	Beneficiary						Non-beneficiary					
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total	
		MPS	R	MPS	R	MPS	R	MPS	R	MPS	R	MPS	R
1.	Adoption of knapsack hand sprayer (KSHS)	90.00	I	84.50	III	87.25	II	40.00	II	38.75	II	39.37	II
2.	Application of recommended insecticides	88.75	III	83.75	IV	86.25	III	45.00	I	40.00	I	42.50	I
3.	Using duster for dusting the chemicals	89.37	II	86.87	I	88.12	I	33.75	IV	33.75	IV	33.75	IV
4.	Application of recommended fungicides	85.00	IV	85.00	II	85.00	IV	36.25	III	38.50	III	37.50	III
	Total	88.28		85.15		86.71		38.75		37.81		38.28	

MPS =Mean per cent score, R = Rank

Overall adoption level of the respondents regarding wheat crop interventions :

The data presented in Table 7 show that the beneficiary respondents possessed 85.48 MPS of extent of adoption about seed minikits, whereas the extent of adoption non-beneficiary respondents about this aspect was comparatively less with 34.83 MPS. It was ranked fifth and third by beneficiary and non-beneficiary respondents, respectively. The level of adoption of non-beneficiary respondents was comparatively low about seed minikits than beneficiary respondents. It was observed that the beneficiary respondents had higher adoption about the seed minikits of wheat crop varieties which were supplied to the beneficiary respondents under Rastriya Krishi Vikash Yojana.

It was also observed that beneficiary and non-beneficiary respondents had extent of adoption about the field demonstration was 87.91 and 34.16 MPS, respectively. This aspect was ranked first by beneficiary and fourth by the non-beneficiary respondents. It was observed that beneficiary respondents adopted almost complete operational activities of wheat demonstration. The extent of adoption about micro nutrient application, it was noted that beneficiary and non-beneficiary respondents had 86.32 and 35.78 MPS, respectively. It

was ranked third and second by beneficiary and non-beneficiary respondents, respectively.

It was further observed that majority of the beneficiary farmers were fully adopted the micro-nutrients which are applied for correcting the nutrient deficiencies in maize crop. In case of extent of adoption about farm mechanization, the extent of adoption was 85.72 and 31.66 MPS with ranked fourth and fifth among beneficiary and non-beneficiary respondents, respectively. It was observed that majority of the respondents had adopted this aspect may be due to the fact that now-a-days farmers are acquainted with many farm implements and machineries and these are using for crop cultivation. Regarding adoption level about plant protection equipments, it was observed that beneficiary and non-beneficiary respondents had 86.71 and 38.28 MPS, respectively.

Thus, from above discussion it can be concluded that the extent of adoption in beneficiary respondents was from 85.48 to 87.91 MPS, whereas in case of non-beneficiary respondents the extent of adoption was observed to be from 31.66 to 38.28 MPS in all the aspects about plant protection equipments in wheat cultivation. The similar findings have been supported by the findings of Saharan and Pundhir (2004); Samota (2011) and

Table 7 : Overall adoption level of the respondents regarding wheat crop interventions (n =240)

Sr. No.	Major practices	Beneficiary						Non-beneficiary					
		Tribal area		Non-tribal area		Total		Tribal area		Non-tribal area		Total	
		MPS	R	MPS	R	MPS	R	MPS	R	MPS	R	MPS	R
1.	Adoption of seed minikits	81.79	V	89.18	II	85.48	V	34.21	III	35.45	III	34.83	III
2.	Adoption of field demonstrations	84.79	II	91.04	I	87.91	I	33.33	IV	35.00	IV	34.16	IV
3.	Adoption of micro-nutrients	84.68	III	87.96	III	86.32	III	35.31	II	36.25	II	35.78	II
4.	Adoption of farm mechanization	84.16	IV	87.29	IV	85.72	IV	28.75	V	34.58	V	31.66	V
5.	Adoption of plant protection equipments	88.28	I	85.15	V	86.71	II	38.75	I	37.81	I	38.28	I
	Total	84.74		88.30		86.16		34.58		35.83		35.20	

MPS=Mean per cent score, R = Rank

Table 8 : Practice wise comparison of adoption between beneficiary and non-beneficiary respondents of wheat crop

Sr. No	Package of practices	Beneficiary		Non-beneficiary		'Z' value
		Mean±	S.D.	Mean±	S.D.	
1.	Adoption of seed minikits	13.51	1.95	5.57	2.70	20.09**
2.	Adoption of field demonstrations	5.27	0.88	2.05	1.21	11.46**
3.	Adoption of micro-nutrients	6.90	1.01	2.86	1.85	12.50**
4.	Adoption of farm mechanization	5.14	0.94	1.90	1.26	10.22**
5.	Adoption of plant protection equipments	6.93	1.20	3.06	1.50	12.48**
	Overall	41.36	3.35	16.90	4.41	34.44**

**indicates significance of value at P=0.01

Kumar (2012).

Practices wise comparison between beneficiary and non-beneficiary farmers about adoption of wheat interventions :

Table 8 indicates that calculated 'Z' value was greater than its tabulated value at 1 per cent level of significance in all practices of wheat. Hence, research hypothesis (RH_1) was accepted and Null hypothesis (NH_{01}) was rejected, which leads to the conclusion that there had been significant difference in level of adoption between beneficiary and non-beneficiary respondents regarding recommended wheat interventions.

Further analysis of table shows that mean score of beneficiary farmers is more than non-beneficiary farmers, which clearly indicates that beneficiary farmers had more adoption level than non-beneficiary farmers about recommended wheat interventions. This significant difference between beneficiary and non-beneficiary farmers clearly indicates that Rastriya Krishi Vikash Yojana played a significant and positive role in adoption of various technologies of wheat in the study area. Similar findings are reported by Kumar (2012) and Gupta *et al.* (2004).

Conclusion :

Thus, from the above results, it may be concluded that beneficiary respondents had medium to high level of adoption while, non-beneficiary respondents had medium to low level of adoption regarding recommended wheat interventions. It was also found that there was a significant difference between beneficiaries and non-beneficiaries about adoption of recommended wheat interventions.

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