

KNOWLEDGE AND ADOPTION OF SCIENTIFIC WHEAT CULTIVATION PRACTICES IN BIHAR AND HARYANA

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ABSTRACT

The study was conducted in two purposively selected states i.e. Bihar and Haryana. From each state, two progressive districts in terms of agricultural development were purposively selected. From each district two blocks, from each block two villages and from each village 10 farmers were selected by using multistage random sampling technique, thereby constituting a total sample size of 160 farmer respondents. Data were collected by using personal interview method. The collected data were tabulated, analyzed and interpreted with the help of appropriate statistical tools. Knowledge and adoption level of farmers in wheat cultivation practices was found to be more in Haryana in comparison to Bihar. However, majority of farmers were having medium level of knowledge and adoption in wheat cultivation practices in both states.

Key words: Wheat; Knowledge; Adoption

INTRODUCTION

Wheat is the second most important food crop of India after rice consumed by nearly 65 per cent of the population in India. It is mostly consumed in the form of 'Chapati' in our country. The packages of technology, services and public policies introduced since the beginning of the first five year plan in 1950, the country has transformed itself from a "begging bowl" image to one which now occupies second position in terms of wheat production and area in the world. The wheat Production increased from a mere 12.5 million tons in 1964 to around 73 millions tons in recent years. The highest production of wheat in the country (76.37 million tons) was realized during the 1999-2000 crop season. India has the capacity to become world leader in the production of wheat.

We are now included in the group of wheat exporting countries and with the opening of inter-national trade, there is greater opportunity to capitalize on this aspect. However, there are three major issues, which need to be tackled to face the challenges of wheat trade in the international market. These three issues are quality, cost and Karnal bunt. It is also realized that sustaining the wheat productivity is essential to provide food security to the population of India, which by the year 2020 AD will be about 1.25 billion. The projected demand for wheat by the year 2020 is around 109 million tons.

Productivity of wheat varies from region to region. Bihar and Haryana are located in different agro-climatic regions. It is very important to understand the adoption of scientific wheat cultivation practices in different regions of the country to bridge the gap between potential yield and actual yield at farmer's field and minimize spatial variations in wheat productivity in the country. For this, it is also imperative to understand the present level of knowledge of the farmers regarding scientific wheat cultivation practices. Therefore,

keeping this in view, the present study was undertaken with following objectives:

1. To assess the level of knowledge of farmers regarding scientific wheat cultivation practices in Bihar and Haryana.
2. To assess the level of adoption of farmers regarding scientific wheat cultivation practices in Bihar and Haryana.

METHODOLOGY

The study was conducted in the selected states of Bihar and Haryana. Two agriculturally progressive districts, i.e., Patna and Begusarai from Bihar, and Karnal and Kurukshetra from Haryana were purposively selected. Then, two blocks from each district; and from each block, two villages; and from each village, 10 farmers were selected by using multi-stage random sampling technique, thereby constituting a sample-size of 160 farmer respondents. Those farmers who were growing crops were considered as potential respondents.

Relevant variables were selected after extensive review of literature and consultation with the experts. Use of HYV, application of FYM, application of synthetic nitrogenous fertilizer and irrigation practices in wheat crop were selected for the present study. Data were collected by interviewing the farmer with the help of an interview-schedule. Collected data were tabulated and analyzed by using mean, frequency, percentage and 'Z' test.

Knowledge about scientific wheat cultivation practices in the present study has been operationalized as the amount of information and understanding about scientific wheat cultivation practices possessed by the farmer respondents. Knowledge test of Promila (1994) with some modification was used for assessing knowledge level of scientific wheat cultivation practices. Respondents were classified into low, medium and high group by using mean and standard deviation.

Adoption of scientific wheat cultivation practices was

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operationalized as the extent up to which selected practices in above-mentioned crop adopted by the farmer respondents. Teacher made type test was employed for assessing adoption level of scientific wheat cultivation practices. Questions related to adoption of selected practices were framed separately for above-mentioned crop with consultation of experts and extensive review of literature. These questions were also related to items used for assessing knowledge level in wheat crop. Score was assigned to each question for correct and incorrect answers. Total obtained score and mean score was estimated. Respondents were classified into low, medium and high groups by using mean and standard deviation.

RESULTS AND DISCUSSION

Knowledge level of farmers regarding scientific wheat

Table 1. Knowledge level of farmers regarding scientific wheat cultivation.

Bihar (N=78)			Haryana (N=80)			Z-Value (Between Mean Score)
Mean Score	Category	Fre-quency	Mean Score	Category	Fre-quency	
9.63	Low (<7.41)	12 (15.38)	11.19	Low (<9.25)	15 (18.75)	9.40**
	Medium (7.41-11.85)	47 (60.26)		Medium (9.25-13.12)	54 (67.50)	
	High (>11.85)	19 (24.36)		High (>13.12)	11 (13.75)	

** Significant at 0.01 level of probability.

As evident from Table 2, knowledge scores with respect to HYV, synthetic nitrogenous fertilizer and irrigation in wheat cultivation, and overall wheat cultivation were found to be less in Bihar as compared to Haryana; whereas mean knowledge score of FYM was found to be more in Bihar than that of Haryana. Some farmers of Haryana opined that FYM applied in rice field could fulfil FYM requirement of succeeding crop (wheat). Inadequate availability of FYM coupled with less knowledge level of farmers might be attributed to low level of FYM application in wheat.

Table 2. Extent of knowledge among farmers regarding scientific wheat cultivation practices.

S. No.	Practices	Maximum Score	Mean Score	
			Bihar (N=78)	Haryana (N=80)
1.	High Yielding Varieties (HYV)	2	1.65	1.71
2.	Farm Yard Manure (FYM)	1	0.46	0.21
3.	Synthetic Nitrogenous Fertilizer	2	1.83	1.96
4.	Irrigation	2	1.95	2.0
5.	Overall	19	9.63	11.19

Adoption level of farmers regarding scientific wheat cultivation practices: Perusal of the data presented in Table 3 revealed that mean adoption scores regarding scientific wheat

Table 3. Adoption level of farmers regarding scientific wheat cultivation.

Bihar (N=78)			Haryana (N=80)			Z-Value (Between Mean Score)
Mean Score	Category	Frequency	Mean Score	Category	Frequency	
7.19	Low (<5.66)	9 (11.54)	8.85	Low (<7.51)	10 (12.50)	14.48**
	Medium (5.66-8.72)	56 (71.79)		Medium (7.51-10.19)	63 (78.75)	
	High (>8.72)	13 (16.67)		High >10.19)	7 (8.75)	

** Significant at 0.01 level of probability.

cultivation practices: Table 1 revealed that difference at one percent level of significance was found between farmers of Bihar and Haryana regarding mean knowledge score of wheat cultivation. Table 1 further indicated that on the basis of analysis of overall knowledge score, in Bihar, most of farmers were in medium category (60.26%), followed by these belonging to high (24.36%) and low (15.38%) categories, respectively.

In Haryana, most of the respondents were found to possess medium level of knowledge (67.50%), followed by 18.75 and 13.75 percent of them having low and high levels of knowledge, respectively. This finding is in conformity with results of Jaiswal, *et al.* (1986), Mundhwa and Patel (1987) and Promila (1994), who reported that majority of the farmers had medium level of knowledge in wheat cultivation.

cultivation as obtained from Bihar and Haryana were 7.19 and 8.85, respectively, and significant difference at one percent level was found between farmers of Bihar and Haryana apropos above-mentioned parameter. In Bihar, majority of the respondents (71.79%) had medium level of adoption, followed by those having high (16.67%) and low (11.54%) levels of adoption. In Haryana, most of the respondents were found to have medium level of adoption (78.75%), followed by 12.50 and 8.75 percent of them having low and high level of adoption, respectively. Data pertaining to Table 4 revealed that mean adoption scores regarding HYV, irrigation and overall wheat cultivation were less in Bihar as compared to Haryana. However, mean adoption scores regarding FYM and synthetic nitrogenous fertilizers were same in both states. Most of the farmers were not applying FYM; whereas, all farmers were applying synthetic nitrogenous fertilizer in wheat, in both the states. FYM was not being applied mainly due to insufficient technical knowledge, less availability of dung and less time between harvesting of paddy and sowing of wheat for decomposition of FYM. Most of the farmers in both the states were applying irrigation at critical stages in wheat cultivation. Better infrastructural facilities such as electricity operated pump-sets, canal irrigation, etc. might be the probable reasons for 100.00 percent adoption of irrigation in Haryana.

Table 4. Extent of adoption among farmers regarding scientific wheat cultivation practices.

S. No.	Practices	Maximum Score	Mean Score	
			Bihar N=78	Haryana N=80
1.	High Yielding Varieties (HYV)	2	1.63	1.71
2.	Farm Yard Manure (FYM)	1	0.03	0.03
3.	Synthetic Nitrogenous Fertilizer	1	1.00	1.00
4.	Irrigation	2	1.90	2.00
5.	Overall	16	7.19	8.85

CONCLUSION

The mean knowledge scores with respect to HYV, synthetic nitrogenous fertilizer, irrigation and overall practices in wheat were found to be less in Bihar as compared to Haryana.

Whereas mean knowledge score of FYM was found to be more in Bihar than that of Haryana. The mean adoption scores regarding HYV, irrigation and overall practices in wheat cultivation were found to be less in Bihar as compared to Haryana. However, mean adoption scores regarding FYM and synthetic nitrogenous fertilizers were same in both states. There is need of widespread training and demonstration of package of practices for scientific wheat cultivation. Extension agencies should demonstrate to the farmers the process of seed treatment and keep them updated about recent HYVs. Extension agencies should also impart the technical know how of balanced use of fertilizer, knowledge of critical stages of irrigation etc. Government should ensure farmers timely availability of quality seeds and procurement of farm produce at reasonable price.

REFERENCES

1. Jaiswal, D.K., Mishra, P.K., Shrivastava, J.K. and Rai, R.N. 1986. Gap between recommended wheat technology and actual adoption in Tikamgarh district of UP. *JNKVV Res. J.*, **20**(1-4): 134-135.
2. Mundhwa, A.B. and Patel, H.L. 1987. Rainfed wheat growers knowledge about the rainfed wheat in Bhal area of Gujarat state. *Maha. J. Extn. Edn.*, **7**: 111-116.
3. Promila. 1994. Gender analysis in dairy and crop production in Kangra district (HP). Ph.D. Thesis, NDRI, Karnal, India.
4. Yadav, V.K. 2005. Sustainability of scientific crop cultivation and dairy Practices: A comparative study in Bihar and Haryana. Ph.D. Thesis, NDRI, Karnal, India.

