RESEARCH NOTE

Knowledge and Adoption of Scientific Wheat Cultivation Practices in Rajasthan

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ABSTRACT

The present study was conducted in 8 selected tehsils of all districts in agroclimatic zone IIIa of Rajasthan. Two VLW circles from each selected tehsil, one village from each selected VLW circle and 15 farmers from each selected village were drawn by using multi-stage random sampling technique, thereby constituting a sample-size of 240 respondents for the study. The study revealed that farmers had maximum knowledge in high yielding varieties and followed by harvesting and storage and irrigation management. While maximum knowledge gap was observed in practice of soil treatment and followed by seed treatment and plant protection measures. Further, it may be observed that among all the wheat production practices, the technological gap varies from 26.62 to 53.00 per cent. Respondents had maximum adoption about recommended spacing and use of HYV seed, while they had maximum adoption gap in application of azactobactor culture, use of weedicide , plant protection measures and seed treatment with regards to wheat cultivation practices. However, majority of farmers were having medium level of knowledge and adoption in wheat cultivation practices in the states.

Key words: *Wheat; Knowledge; Adoption;*

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 wheat Production increased from a mere 12.5 million tons in 1964 to around 120 millions tons in recent years. The highest production of wheat in the country (93.90 million tons) was realized during the 2011-12 crop season. India has the capacity to become world leader in the production of wheat. However, the average wheat yield is only 1574 kg per hectare in India which is much lower compared to other nations of the world.

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 years 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. Rajasthan is 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:

i. To assess the level of knowledge of farmers regarding scientific wheat cultivation practices in Rajasthan
ii. To assess the level of adoption of farmers regarding scientific wheat cultivation practices in Rajasthan

METHODOLOGY

The present study was conducted in 8 selected tehsils of all districts in agroclimatic zone IIIa of Rajasthan. Two VLW circles from each selected tehsil, one village from each selected VLW circle and 15 farmers from each selected village were drawn by using multi-stage random sampling technique, thereby constituting a sample-size of 240 respondents for the study. Those farmers who were growing crops were considered as potential respondents

For measuring the knowledge about 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 respondent. The response was recorded on dichotomous continuum i.e. 'Yes and No' or 'Correct and Incorrect' where Yes means correct response and No means incorrect response. Score 1 and 0 was assigned to yes or No response respectively. In all, the maximum possible knowledge scores were 70. The following formula was used to work out knowledge index -

$$\text{Knowledge Index} = \frac{X_1 + X_2 + X_3 \ldots\ldots\ldots X_n}{N} \times 100$$

Where $X_1+X_2+X_3$ ……X_n are the scores for first, second ———n^{th} questions and N is the maximum possible score.

Further the mean score and standard deviation of the obtained knowledge score was calculated to classify the knowledge level into three categories namely low, medium and high.

The responses of the respondents were recorded on the package of practices actually adopted by them. The proportions for each of the ten practices (Actual/ recommended) were calculated and multiplied by the corresponding weight. Then these values of all the items were summed and divided by the total number of weight. The resulting value was multiplied by 100 to indicate the percentage of the extent of adoption of the improved practices of crops.

$$\text{Adoption Index} = \frac{\text{Total score obtain}}{\text{Total weightage}} \times 100$$

Further to classify the adoption level into three categories i.e. low, medium and high, the mean and standard deviation of the obtained score were also calculated.

RESULTS AND DISCUSSION

Knowledge level of farmers regarding scientific wheat cultivation practices: Table 1 shows that 61.25 per cent of total respondents were found in medium knowledge group, while 15.42 and 23.33 per cent of farmers were found in low and high knowledge groups respectively about improved practices of wheat cultivation. These findings are supported by the findings of *Promila (1994)* and *Takate and Khot (1988)* in which they revealed that more than half of the respondents had medium level of knowledge. Comparatively less number of farmers were observed in low and high level of knowledge group.

Table 1. Knowledge level of farmers regarding scientific wheat cultivation

Mean	Extent of knowledge	No.	%	S.D.
44.18	Low (up to 35)	037	15.42	09.36
	Medium (36 to 53)	147	61.25	
	High (above 53)	056	23.33	
	Total	240	100.0	

As evident from Table 2 shows that farmers possessed maximum knowledge about high yielding varieties, harvesting and storage and irrigation management practices with 73.38, 73.33 and 71.33 mean per cent score respectively. While the maximum knowledge gap was observed in practice of soil treatment, seed treatment and plant protection measures by the farmers having 53.0, 51.25 and 45.42 mean per cent score respectively about wheat cultivation in the study area.

Table 2. Extent of knowledge and knowledge gap of the farmers with regards to scientific wheat cultivation practices (N=240)

Improved practices	Extent of know-ledge (MPS)	Knowledge gap (MPS)
High yielding varieties	73.38	26.62
Soil treatment	47.00	53.00
Application of azactobactor culture	67.25	32.75
Seed treatment	48.75	51.25
Fertilizer application	62.14	37.86
Irrigation management	71.33	28.67
Weed management	58.57	41.43
Plant protection measures	54.58	45.42
Harvesting and storage	73.33	26.67

MPS = Mean per cent score

The table also shows that the farmers had reasonably good knowledge about application of azactobactor culture, fertilizer application and weed management practice with 67.25, 62.14 and 58.57 mean per cent score, which exhibited a technological knowledge gap of 32.75, 37.86 and 41.43 per cent respectively.

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 cultivation as obtained was 16.68. Study reveals that majority of the respondents (60.42%) had medium level of adoption, followed by those having high (20.41%) and low (19.17%) levels of adoption about improved practices of wheat cultivation.

Table 3. Adoption level of farmers regarding scientific wheat cultivation

Mean	Extent of adoption	No.	%	S.D.
16.68	Low (up to 11)	046	19.17	03.62
	Medium (12 to 18)	145	60.42	
	High (above 18)	049	20.41	
	Total	240	100.00	

An examination of Table 4 reveals that out of ten improved agricultural practices of wheat cultivation, recommended spacing and use of high yielding varieties were most widely adopted practices by the farmers with 76.50 and 66.50 mean per cent score respectively. While the maximum adoption gap was observed in practice of application of azactobactor culture, use of weedicide, plant protection measures and seed treatment by the farmers having 81.0, 79.0, 64.50 and 61.5 mean per cent score respectively in the study area.

CONCLUSION

The study revealed that farmers had maximum knowledge in high yielding varieties with 73.38 mean per cent score and followed by harvesting and storage and irrigation management. While maximum knowledge gap (53.00 MPS) was observed in practice of soil treatment and followed by seed treatment and plant protection measures about wheat cultivation practices. Further, it may be observed that among all the wheat production practices, the technological gap varies from 26.62 to 53.00 per cent

Table 4. Extent of adoption and adoption gap of the farmers with wheat cultivation practices (N = 240)

Improved practices	Extent of Adoption (MPS)	Adoption gap (MPS)
Use of HYV seeds	66.50	33.50
Soil treatment	45.00	55.00
Application of azactobactorculture	19.00	81.00
Seed treatment	38.50	61.50
Recommended spacing	76.50	23.50
Recommended seed rate	65.00	35.00
Fertilizer application	62.50	37.50
Use of weedicide	21.00	79.00
Irrigation management	64.00	36.00
Plant protection measures	35.50	64.50

MPS = Mean per cent score

Respondents had maximum adoption about recommended spacing (76.50 MPS) and use of HYV seed (66.50 MPS), while they had maximum adoption gap in application of azactobactor culture (81.0 MPS), use of weedicide (79.0 MPS), plant protection measures (64.50 MPS) and seed treatment (61.50 MPS) with regards to wheat cultivation practices. 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

Takate, S.V. and Khot, B.B. (1988). Knowledge level of farmers about the improved irrigation water management practices. *Mah. J. of Ext. Edu*. **7**: 91-95.

Promila (1994). Gender analysis in dairy and crop production in Kangra district (HP). Ph.D. Thesis, NDRI, Karnal, India.

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