Int.J.Curr.Microbiol.App.Sci (2020) Special Issue-11: 2624-2629

International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7706 **Special Issue-11 pp. 2624-2629**
Journal homepage: http://www.ijcmas.com

Original Research Article

Assessment of Technological Gap in Respect to Different Component of Wheat Production Technology

A. K. Paswan*, M. N. Ansari, Satyaprash and Janmenjay Kumar

Department of Extension Education, Department of Agriculture Economcs, Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar, India

**Corresponding author*

A B S T R A C T

Wheat (*Triticum aestivun* L.), the king of cereal is of special significance in Indian agriculture for triggering green revolution. India is the second largest wheat producing country in the world next to China. The study was carried out over 180 farmers in the Madhubani district of Bihar. The study revealed that maximum number i.e.72.23 per cent technological gap existed among the farming community in relation to the improved wheat production technology. The study further, shows that the maximum technological gap was observed in the area of plant protection measure in both the block. Similarly, the minimum technological gap was found in the area of post harvest technology and pre-sowing technology in the case of highest and lowest productivity block respectively. The analysis of data related with technological gap in different subcomponents of the main areas indicated a technological gap ranging from 32 to 72 per cent.

Keywords

Technological gap, Wheat, Production Technology

Introduction

Wheat serves as a staple food for more than one billion people in the world and it provides almost 20 per cent of the total food calories for human race. In India, Wheat is the most popular and important rabi crop grown under diverse agro-climatic conditions and occupies about 24.23 million hectare area, with 72.06 million tones production and 2-9 tonnes per hectare productivity. However, there is ample potentiality for increasing wheat yield with the shrinking land resources in present scenario, it become more essential to rise up the vertical productivity because there is very little scope for increasing horizontal productivity. Wheat is the second most important cereal crop after rice (59.6%) in the Madhubani district of Bihar. The district occupies 26.05 percent area of wheat followed by pulses (7.34%) and oil seed (4.25%). But in spite of vast area and immense potential for boosting wheat production, the productivity is still remains very low. This low production and productivity can be enhanced if the farmers are provided with latest wheat production technology including the new verities.

Materials and Methods

Madhubani district of North Bihar was purposely selected for the study. There are twenty one blocks of Madhubani district. Out of twenty one blocks, two blocks were selected on the basis of the productivity figure. Rajnagar block (with highest productivity figure) and Kaluahi (with lowest productivity figure) were selected as locale of the study. The respondent sample was consist of forty five farmers from each selected village consisting 15 small, 15 medium, and 15 large farmers making a total of 180 farmers in four selected villages. Interview technique was used for collection of data with the help of structured interview schedule. The collected data were analyzed with the help of frequency distribution, mean, standard deviation, Pearson's coefficient correlation and multiple regression analysis.

Results and Discussion

Components wise technological gap

The gap in the technology of the highest and lowest productivity block respondent as well as total respondent in relation to the main components of improved wheat production technology is presented in Table 1.

The overall technological gap in relation to the wheat production technology in the lowest productivity block respondent was higher as compared to the highest productivity block respondent. In this block respondent, the highest technological gap was also observed also in the area of plant protection measure that is as high as 72.23per cent. This was followed 70.00 per cent in the area of seed and seed treatment. It means that the lowest productivity block farmers are almost also unaware of plant protection measures, as well as seed and seed treatments in the wheat cultivation. Similarly, the lowest productivity block farmers were also not having the correct knowledge of the seed and seed treatment and plant protection measure. Further, in this block farmer, the minimum technological gap was in the area of pre-sowing technology and post-harvest technology. It was 53.34 per cent in the both areas. Likewise in the areas such as the fertilizer management, irrigation management and crop management and post-harvest technology, the technological gap was existed in 62.33, 60.00 and 54.45 per cent respectively.

Subcomponents wise technological gap

The subcomponent wise technological gap of improved wheat cultivation technology is assessed under the following sub-heads:-

Pre- sowing technology

The Table 2 shows that, 34-72 per cent technological gap existed in the various sub-components of the pre-sowing technology of the wheat cultivation. In the subcomponents, in area of knowledge of zero tillage, the technological gap was highest that is 72.23 per cent, whereas the technological gap was 34.45 per cent in the subcomponent area of number of ploughing required.

Seed and seed treatment

Table 3 shows that the maximum technological gap was observed in the subcomponents of treatment of seed (69.45 per cent). This included name of chemicals as well as the quantity for treatment of wheat seed. The subcomponent area selection of variety for early, medium and late sowing of wheat came at the second position as regards the technological gap of the total farmers. Similarly the technological gap in the subcomponent area of optimum time for sowing for early, medium and late variety

was 45.01 per cent. The minimum technological gap was observed in the subcomponents area of seed rate. It was to the tune of 41.67 per cent. The minimum technological gap was observed in the subcomponents area of seed rate similar in the case total farmers.

Fertilizer management

It is clear from table 4 that in the case of total farmers the maximum technological gap in the subcomponents areas of fertilizer management in relation to the wheat production technology was observed to be in the use of Potassic fertilizers. The farmers showed 61.12 per cent technological gap in the subcomponent area such as the quantity and time of the use of Potassic fertilizers. Concerning the quality and time of the use of Phosphatic fertilizers, the technological gap was 38.34 per cent and in the case of quantity and time of use of nitrogenous fertilizers the technological gap was observed minimum to the tune of 47.23 per cent.

Crop management

The Table 5 reveals that the technological gap in this subcomponent area of crop management was 47.23 per cent. The farmers were having relatively better knowledge of technology in the maintaining plant spacing, in the subcomponent area of crop management and that was 42.23 per cent.

The table further indicated that the technological gap in both blocks of farmers showed a similar trend as in the case of total farmers.

Irrigation management

Table 6 indicated that the maximum technological gap was observed in the subcomponents area of identification of the critical stage. It was 65.01 per cent in the case of total farmers. The same was high as 73.34 per cent in the case of lowest productivity block farmers as compared to lower percent i.e. 56.67 per cent among the highest productivity block farmers. This was followed by 48.90 and 38.34 per cent in the subcomponents of days of interval and number of irrigation between the two irrigation respectively (61.12 and 53.34 per cent in the case of lowest productivity block farmers, and 36.67and 23.34 per cent in the case of highest productivity block farmers).

In this way the study concludes that the highest gap exist in between the technology possessed by the farmers and the technology should have been with the farmers in relation to the irrigation management of wheat cultivation.

Plant protection measure

Table 7 indicated the technological gap in the subcomponent areas of identification of the symptoms of insect cause by root and shoot borer and other along with their control measures was 57.78 per cent in the case of total farmers (66.67% in lowest productivity block farmers and 48.89% in highest productivity block farmers). The identification of the symptoms of disease cause by fungi, bacteria and nematode along with their control measures was observed to be 53.34 in the case of total farmer.

Post-harvest technology

The data related to technological gap in the subcomponents areas of post harvest technology is presented in Table 8.

The table revealed that in all the cases the technological gap in the subcomponent area of improved method of storage about 51 to 63 per cent.

Table.1 Extent of technological gap in various components of wheat production technology (% age)

Sl. No.	Components	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Pre-sowing technology	64.44	35.56	46.66	53.34	55.55	44.45
2.	Seed and seed treatments	54.44	45.56	30.00	70.00	42.22	57.78
3.	Fertilizer Management	57.77	42.23	37.77	62.23	47.77	52.23
4.	Crop Management	68.88	31.12	45.55	54.45	57.21	42.79
5.	Irrigation Management	61.11	38.89	40.00	60.00	50.55	49.45
6.	Plant protection measure	53.33	46.67	27.77	72.23	40.55	59.45
7.	Post harvest technology	71.11	28.89	46.66	53.34	58.88	41.12
Mean		51.58	38.42	39.20	60.80	50.39	49.61

T. P. = Technology Possessed
T.G. = Technological Gap

Table.2 Technological gap in the subcomponents areas of pre-sowing technology (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Type of land required	75.55	24.45	35.55	64.45	55.52	47.48
2.	No. of Ploughing required	84.44	15.56	46.66	53.34	65.55	34.45
3.	Mannuring	61.11	38.89	53.33	46.67	57.22	42.78
4.	Knowledge of zero village	35.55	64.45	20.00	80.00	27.27	72.23

Table.3 Technological gap in the subcomponents areas of seed and seed treatment (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Selection of variety	42.22	57.78	34.44	65.56	38.33	61.67
2.	Optimum time for sowing	61.11	38.89	48.88	51.12	54.99	45.01
3.	Method of sowing	66.66	33.34	52.22	47.78	59.44	40.56
4.	Seed rate	62.22	37.78	54.44	45.56	58.33	41.67
5.	Seed treatment	35.55	64.45	25.55	74.45	30.55	69.45

Table.4 Technological gap in the subcomponents of fertilizer management (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Nitrogenous (Quantity + time) (Urea +DPA)	61.11	38.89	44.44	55.56	52.77	47.23
2.	Phosphatic (Quantity +time) (SSP +DAP)	71.11	28.89	52.22	47.78	61.66	38.34
3.	Potassic (Quantity +time) (MOP +Pot. Sulphate)	40.00	60.00	37.77	62.23	38.88	61.12

Table.5 Technological gap in the subcomponents areas of crop management (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Plant spacing	72.22	27.78	43.33	56.67	57.77	42.23
2.	Interculturing + Weeding (No. + time + use of chemical weedicide)	64.44	35.56	41.11	58.89	52.77	47.23

Table.6 Technological gap in the subcomponents areas of irrigation management (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	No. of irrigation required	76.66	23.34	46.66	53.34	61.66	38.34
2.	Days of intervals	63.33	36.67	38.88	61.12	51.10	48.90
3.	Critical stage	43.33	56.67	26.66	73.34	34.99	65.01

Table.7 Technological gap in the subcomponents areas of plant protection measure (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Knowledge of name of disease (symptoms + control)	57.77	42.23	35.55	64.45	46.66	53.34
2.	Knowledge of name of disease (symptoms + control)	57.77	42.23	35.55	64.45	46.66	53.34

Table.8 Technological gap in the subcomponents areas of post harvest technology (% age)

Sl. No.	Subcomponents	Highest productivity block (N = 90)		Lowest Productivity block (N = 90)		Total (N = 180)	
		T.P	T.G	T.P.	T.G.	T.P.	T.G.
1.	Harvesting time	71.11	28.89	64.44	35.56	67.77	32.23
2.	Moisture content	63.33	36.67	40.00	60.00	51.66	48.34
3.	Improved method of storage (use of chemical + fumigation)	48.88	51.12	25.55	74.45	37.21	62.79

This one is followed by the moisture content and harvesting time. In this way study concludes that the vast gap exists in between the technology possessed by the farmers and the technology should have been among the farmers in relation to the improved methods of storage technology of wheat grains.

The study finally concluded that maximum technological gap exited in relation to the improved wheat production technology was observed in the area of plant protection measure. Similarly, the minimum technological gap was found in the area of post-harvest technology and pre-sowing technology. The analysis of the data related to the technological gap in indifferent sub-components areas of the main components indicated that technological gap ranging from 32.23 per cent to 72.23 per cent.

References

Barman, U.; Pathak, K. and Kalita, M.K. (2000). Analysis of technological gap in ahu rice cultivation in Assam. *Annals of Agric. Bio. Research*, 5 (2) : 195-197.

Joshi AK, Mishra B, Chatrath R, Ortiz Ferrara G, Singh RP. Wheat improvement in India: Present status, emerging challenges and future prospects. Euphytica. 2007; 157(3):457-64.

Joshi NS, Bariya MK, Kunjadia BB. Yield gap analysis through front line demonstrations in wheat crop. *International J Scientific Res. Pub.* 2014; 4(9):1-3.

Neha (2018). Technological Gap in Recommended Cultivation Practices of Cauliflower in Bokaro District of Jharkhand,*International Journal of Current Microbiology and Applied Science*, 7: 5237-5241.

Singh, P. and Singh, K. (2002). Technological gap in rapeseed and mustard cultivation in Bharatpur. Agricultural Extension Review, March-April, 2002 : 10-13

Suman(2017). Extent of Technological Gap and its Relationship with Different Characteristics of Vegetable Growers. *Journal of Agri Search*, 4(3): 223-225

Tiwari BK, Aashutosh Sharma, Sahare KV, Tripathi PN, Singh RR. Yield gap analysis of wheat (*Triticum aestivum*) through front line demonstration under limited irrigation conditions. *Plant Archives.* 2014; 14(1):495- 498.