

Original Research Article

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## Impact of Frontline Demonstration on Yield and Economics of Cereal Crops

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### ABSTRACT

#### Keywords

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A total 26 frontline demonstration on cereals crops out of which 16 demonstration on rice and 10 on wheat were organized at farmers' fields of Sheopur district under Gird zone of Madhya Pradesh during *kharif and rabi* season of 2014-15. The results of these demonstrations revealed that the rice and wheat yielded 10.07 and 12.14 percent higher than farmer's practices. The average yield of rice and wheat under demonstration plot were obtained 4818kg/ha and 4157kg/ha, respectively. Rice and wheat under improved technologies gave higher net return of Rs. 61069/ha and 47129/ha as compared to farmer's practices Rs. 51687/ha and Rs. 41456/ha, respectively. The benefit cost ratio of rice and wheat under improved technologies were 2.22 and 3.3 as compared to 2.05 and 3.20 under farmer's practices. In spite of increase in yield of cereals, technological gap, extension gap and technology index existed.

### Introduction

Cereals constitute the most important group of crops and are the main stay in world agriculture, as they provide nutritious food and fodder. Rice and wheat are the world's most important cereal crops, contributing 45% of the digestible energy and 30% of total protein in the human diet, as well as a substantial contribution to feeding of live stock (Timsina and Conner, 2001). Rice and wheat accounts for about one-fourth of total food grain production of south-east Asia and about 31% of the total food grain production of India (Prasad, 2015).

Increasing yield of cereal crops should be the top priority to fill up the existing gap in the requirement and availability of cereals. A number of technologies for increasing production and productivity of cereals have been generated by over research system. The farmers have adopted some of them still there are many, which have not reached to over farmers. To increase production and productivity of cereal crops there is an urgent need that developed technologies are reached to the farmers.

Frontline demonstration is an effective mechanism for transfer of agriculture

technology to the farmer. The main objective of frontline demonstration is to demonstrate newly released crop production and protection technologies and its management practices in the farmers' fields. While demonstrating the technologies in the farmers' fields the scientists are required to study the factors contributing higher crop production, field constraints of production and there by generate production data and feed back information. The objective of the carried out study is to demonstrate the effect of improved technologies on the yield potential of rice and wheat so that farmer's of district got benefitted.

### **Materials and Methods**

KVKs are well equipped with FLDs under which demonstration are carried out with improved cultivation practices side by side with the farmers' indigenous technologies and yield increments will certainly encourage the farmers to adopt those improved techniques for improving the production potential of these crops. Under the frontline demonstrations, we selected 26 locations on the random basis, out of which 16 selected for rice and 10 locations selected for wheat. For each demonstration we selected a plot of 0.8 ha and divide into two parts of 0.4 ha. Subplot were allotted with T<sub>1</sub> (Plot receiving improved technologies) and T<sub>2</sub> (Plot receiving technologies as per farmer's practices). The soils of area under study were medium black with medium fertility status. The average rainfall of the area was 822 mm.

The improved technology included improved varieties, seed treatment, balanced fertilizer application and integrated pest management etc. Rice were sown in the 1<sup>st</sup> week of July and harvested in November while wheat sown in last of November and harvested in the last of March. The data output were collected from both FLD plots as well as control plot and for

the study, technology gap, extension gap, technology index with the benefit cost ratio were calculated as suggested by Samui *et al.*, (2000).

### **Results and Discussion**

The table 1 shows crop wise performance of the demonstration in term of yield increased over farmers' practices. The average yield of wheat under improved technologies was recorded Rs. 4662 kg/ha over farmers' practices (4157kg/ha) while, average yield of rice was 4818 kg/ha under improved technologies and 4352 kg/ha under farmers' practices. Average yield increase of 12.14 percent in wheat and 10.07 percent in rice were recorded which was mainly because of improved technologies. The results are similar to findings of Joshi *et al.*, (2014). Thus, it was clearly showed that the demonstration of cereal crops with improved technologies was better to farmers' practices.

The data showed in table 2 that extension gap existed between demonstrations and farmer practices. The average extension gap of 441 kg/ha and 505 kg/ha were recorded in rice and wheat, respectively. It shows the need to educate the farmers through various techniques for adoption of improved technology to reverse the trend of wide extension gap.

The technological gap in rice and wheat were recorded 118 kg/ha and 338 kg/ha, respectively (Table 1). The technology index shows the feasibility of the evolved technology at the farmers' fields. The technology index 2.36 percent for rice and 6.70 percent for wheat were recorded (Table 1). As such variation in technology index may be attributed to dissimilarity in the soil fertility condition, pest disease attack, non availability and poor quality of irrigation water and weather condition.

**Table.1** Yield, technology gap, extension gap and technology index in rice and wheat under FLDs

Name of Cereal Crop	Area (ha)	No. of farmers	Yield (kg/ha)			%Change were farmer practices	Technology gap (kg/ha)	Extension gap (kg/ha)	Technology index (%)
			Potential	Improved technologies	Farmer practices				
Rice	6.40	16	5000	4818	4352	10.07	118	441	2.36
Wheat	4.00	10	5000	4662	4157	12.14	338	505	6.70

**Table.2** Gross return, Cost of cultivation, Net return and B: C ratio under demonstration and under FLDs

Name of Cereal Crop	Gross return (Rs/ha)		Cost of cultivation (Rs/ha)		Net return		B:C Ratio	
	Improved technology	Farmer's practices	Improved technology	Farmer's practices	Improved technology	Farmer's practices	Improved technology	Farmer's practices
Rice	110814	1006825	49745	48995	61069	51687	2.22	2.05
Wheat	67599	60276	20470	18820	47129	41456	3.30	3.20

Data in table 2 showed that the total cost of rice and wheat production in demonstration were Rs. 49745 and Rs. 20470/ha while in farmer's practices Rs. 48995 and Rs. 18820/ha, respectively. The net return from rice and wheat cultivation under demonstration were Rs. 61069 and Rs. 47129/ha while under farmer's practices Rs. 51687 and Rs. 41456/ha, respectively. The benefit-cost ratio was calculated. For rice and wheat it was 2.22 and 3.30 under demonstration as compared to 2.05 and 3.20 under farmer practices, respectively.

On the basis of present study, it can be concluded that frontline demonstration on cereals conducted under close supervision of scientists is one of the most important tool of extension of newly released crop production and protection technologies of cereals and its management practices in the farmers' fields. FLDs are playing important role in motivating the farmers for adoption of improved

agriculture technologies of cereals crop resulting in increasing their yield and profit.

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