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IMPACT OF FRONT LINE DEMONSTRATION ON WHEAT IN ARARIA DISTRICT OF BIHAR

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ABSTRACTS

The present study was done by Krishi Vigyan Kendra, Araria in its 5 adopted villages (Ithera in Araria block, Majlispur in Palasi, Manikpur in Forbesganj, Barwanna in Raniganj and Chaki in Jokihat) to know the Yield Gap, Economic Return and Extent of level of farmer's satisfaction. In this study, 40 respondents were all those farmers on whose field FLD was conducted during the years 2008-09and 2009-10. . Improved seed of wheat was supplied by the KVK under FLD programme. Before conducting FLD, through meeting and training, the respondents were made abreast with the latest recommended package of practices of wheat. The demonstrated technologies under FLD resulted in an increase in yield by 50.29 percent over Local Check. It was also observed that there was technology gap (TG), extension gap (EG) and technology index (TI) of 8.79q/ha, 12.21 q/ha and 19.49 percent respectively. The economic performance of wheat under FLD showed an additional return of Rs.12629/ ha and additional cost of cultivation of Rs. 751.4/ha with BC ratio of 1.9 for demonstration and 1.3 for Local Check. The respondent satisfaction index (RSI) revealed that majority of respondent farmers expressed high (70.00percent) level of satisfaction about Front Line Demonstration.

Key words : *FLD, yield, Economics, technology gap, extension gap, technology index, and respondent satisfaction index.*

Agricultural activity in Araria district is by and large confined to traditional cultivation. The district receive abundance of rainwater as a result of which the water table is high in the region means there is sufficient water available for crops like wheat in Rabi season. KVKs are grass root level organizations meant for application of technology through assessment, refinement and demonstration of proven technologies under different 'micro farming' situations in a district (Das, 2007). Although, soybean has emerged as a main oilseed crop of the country in short span of time and attained a vital status in agriculture and oil economy of India still, a vast gap exist between potential yield and yield under real farming situations in all the soybean growing agro ecological zones (Bhatia *et al*., 2006). Front Line Demonstration (FLD) is considered one of the most powerful tools for transfer of technology, as it establishes production potential of various crops and enterprises on farmers field through "Learning by doing and Seeing is believing". While demonstrating the technologies in the farmers' field, the scientists are required to study the factors contributing higher crop production, field constrains of production and thereby generate production data and feedback information. Due to different limiting factors prevailing in the district and use of traditional seeds of wheat, farmers often fail to achieve the desired potential yield of new wheat varieties. Keeping these in view, FLDs of improved production technology on wheat were conducted to enhance the yield and economic returns of wheat crop.

MATERIAL AND METHODS

The present investigation was doneby Krishi Vigyan Kendra, Araria in its 5 adopted villages (Ithera in Araria block, Majlispur in Palasi, Manikpur in Forbesganj, Barwanna in Raniganj and Chaki in Jokihat) to know the Yield Gap, Economic Return and Extent of level of farmer's satisfaction. In this study, 40 respondents were all those farmers on whose field FLD was conducted during the years 2008-09and 2009-10. Improved seed of wheat was supplied by the KVK under FLD programme. Before conducting FLD, through meeting and training, the respondents were made abreast with the latest recommended package of practices of wheat. Time to time monitoring of FLD plots were carried out by the KVK scientists and farmers were advised to carry out different operations. Yield of the front line demonstrations and potential yield of the crop was compared to estimate the yield gaps (Table 2) between soybean and black soybean (*Bhat*) which were further categorized into technology and extension gaps (Hiremath and Nagaraju, 2009). Data were collected with the help of personal contact. The collected data were calculated and analyzed to draw the inferences. The technology gap, extension gap and

Table-1 : Yield performance of wheat under Front Line Demonstration.

Year	Variety	No. of Demn.	Area (ha)	Yield (qt/ha)		% increase over Local check	Technology Gap (qt/ha)	Extension Gap (qt/ha)	Technology Index (%)
				Demn.	Local check				
2008-09	K-9107	10	1.6	39.12	25.00	56.48	5.88	14.12	11.76
	WH-711	10	1.6	26.83	20.00	34.15	18.17	6.83	40.37
2009-10	HD-2824	5	1.0	43.4	25.00	73.6	6.60	18.40	13.20
	PBW-443	5	1.0	41.0	25.00	64.4	4.00	16.00	8.88
	PBW-373	10	1.34	30.7	25.00	22.8	9,30	5.70	23.25
Mean		8	1.31	36.21	24.00	50.29	8.79	12.21	19.49

Table-2 : Economic performance of wheat under Front Line Demonstration.

Year	Variety	Cost of cultivation (Rs/ha)		Gross Return (Rs/ha)		Net Return (Rs/ha)		Additional cost of cultivation (Rs/ha)	Additioal Return (Rs/ha)	BC Ratio	
		Dem^{n}.	Local check	Dem^{n}.	Local check	Dem^{n}.	Local check			Dem^{n}.	Local check
2008-09	K-9107	19407	18600	43032	27500	23572	8900	807	15532	2.21	1.48
	WH-711	18740	17590	29513	22000	10773	4410	1150	7513	1.57	1.25
2009-10	HD-2824	19800	18800	43400	25000	23600	5600	1000	18400	2.19	1.28
	PBW-443	19800	19400	41000	25000	21200	5600	400	16000	2.07	1.28
	PBW-373	19800	19400	30700	25000	10900	5600	400	5700	1.55	1.28
Mean		19509.4	18758	37529	24900	18009	6022	751.4	12629	1.9	1.3

technology index were calculated using the following formula as suggested by Samui *et al*. (2000).

Percent increase yield

$$= \frac{\text{Demonstration yield} - \text{local check yield}}{\text{Local check yield}} \quad 100$$

Extension gap (q/ha) = Demonstration yield (q/ha) – Yield of local check (q/ha)

Technology gap (q/ha) = Potential yield (q/ha) – Demonstration yield (q/ha)

Technology index (%)

$$= \frac{\text{Potential yield} - \text{Demonstration yield}}{\text{Potential yield}} \quad 100$$

During the investigation, satisfaction level of respondent farmers was also assessedin order to kwon the performance of technology demonstrated. The selected respondents were interviewed personally with the help of a pre-tested and well-structured interview schedule. After that Respondent Satisfaction Index was calculated using the formula as below.

Respondent satisfaction index

$$= \frac{\text{Individual score obtained}}{\text{Maximum score possible}} \quad 100$$

The economic parameters (Cost of cultivation, Gross Return, Net Return and B:C ratio) were worked out on the basis of prevailing market prices of inputs and minimum support prices of outputs.

RESULTS AND DISCUSSION

Yield analysis : The yield data of wheat obtained during two year of FLD presented in table-1 indicates mean yield of 36.21 q/ha and 24.00 q/ha for demonstration and local check respectively. It was also found that the demonstrated technologies under FLD resulted in an increase in yield by 50.29 percent over Local Check.

Table-1 Also shows mean extension gap of 12.21 q/ha which is the gap between demonstrated technology and local check. Mean technology gap, the gap between potential yield and demonstration yield, found to be 8.79 q/ha. This trend of results emphasis the need to educate the farmers about latest recommended technology of wheat production in order to narrow down the extension gap. The technology gap observed may be due to climate change and dissimilarity in soil fertility status. Therefore, variety wise location specific recommendation appears to benecessary to minimize the technology gap for yield level in different situations. As far as the technology index is concerned, indicating the feasibility of the evolved technology at the farmer's field. It shows that lower the value of technology index more is the feasibility of the technology. In the present study, mean technology index was found to be 19.49 percent. This result was in conformity with the result of Hiremath and Nagaraju (2009).

Economic performance : Table-2 showing the economic performance of wheat under front line demonstration. Though the table reveals higher mean cost of cultivation (Rs.19509.4/ha) of demonstrated technology as compared to cost involved in local check (Rs.18758/ha) but the demonstration plots fetched higher mean gross returns (Rs.37529/ha) and mean net returns (Rs.18009/ha) with higher benefit: cost ratio (1.9) as compared to mean gross returns (Rs.24900/ ha), mean net returns (Rs.6022/ha) and benefit: cost ratio (1.3) of local check. Similar result was reported by Hiremath and Nagaraju (2009).

The perusal of table-2 also reveals higher mean additional return of Rs. 12629/ha in comparison to mean additional cost of cultivation of Rs. 751.4/ha. This indicates higher profitability and economic viability of wheat demonstrations under local agro- ecological situation.

Respondent Satisfaction Level :

Table-3 : Extent of Farmers Satisfaction about Front Line Demonstration.

Satisfaction Level	Frequency	Percentage
Low	3	7.50
Medium	9	22.50
High	28	70.00

Table-3 indicates respondent satisfaction index towards front line demonstration and found that majority of them had high level of satisfaction index (70.00 percent) followed by medium level of respondent satisfaction index (22.50 percent). It was also observed that only 7.50 percent of respondent farmers had low level of satisfaction index. It is quite obvious from the table-3 that majority of respondent farmers fall under higher and medium level of satisfaction level Towards performance of technology demonstrated, hence, it indicates a stronger conviction, physical and mental involvement in the frontline demonstrations which in turn would lead to easy and higher adoption of the technology demonstrated. The results are corroborated with the results of Kumaran and Vijayaragavan (2005).

CONCLUSION

From the above facts mention, it could be inferred that using improved production technology the yield and return of wheat can be increased substantially. The yield of wheat under frontline demonstration with improved variety found always greater than the yield of wheat in local check which could further be increased by adopting recommended production technology. However, demonstration yield of wheat is still less than its potential yield. Hence, there is need to disseminate recommended technologies of wheat through effective extension teaching methods *i.e.,* need based training and FLD.

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