

## Performance of Irrigated Wheat FLD's in Mula Command Area of Ahmednagar

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### ABSTRACT

The present study was carried out on wheat variety NIAW-301 at farmer's fields in Ahmednagar district of Maharashtra during 2013-14 to 2015-16. The productivity and yield gaps between improved package and practices under Front Line Demonstrations (FLD's) and farmer's practice of wheat crop in irrigated condition were compared with each other. The data obtained was average for three years. It was observed that on an average 18.84 per cent increased grain yield was recorded in demonstration plots than the farmer's practices. The technology gap, extension gap and technology index were 10.02 q ha<sup>-1</sup>, 4.78 q ha<sup>-1</sup> and 25.05 per cent, respectively. The net returns of Rs. 27,024 compared to farmers practice returns of Rs. 19,382 were obtained.

**Key words** *Wheat, front line demonstration (FLD), technology gap, extension gap, technology index and economic return.*

Wheat is the second most important food crop in India after rice, it play an important role in food security of the country. In Maharashtra wheat is grown on 0.90 mha area with production 124 million tones and productivity of 1381 kg ha<sup>-1</sup> (Anonymous 2015). The productivity of wheat varies widely from location to location. Front Line demonstration (FLD) is the concept to demonstrate the newly evolved technologies on farmers field viz. use of improved varieties, integrated nutrient management, integrated pest management etc. Keeping in view the above facts FLD's of improved production technology on wheat were conducted on farmers field to enhance the productivity and economic returns to the beneficiary farmers & thus promote the technology adoption towards the other.

### MATERIAL AND METHODS

The FLD's on wheat were conducted at farmers field in Mula Command Area of Ahmednagar district to assess its performance during the year 2013-14 to 2015-16. Each demonstration was of 0.20 ha. area and the inputs were applied as per the package of practices of wheat crop recommended by Mahatma Phule Krishi Vidyapeeth, Rahuri. The improved variety NIAW-301, recommended seed rate (100 kg ha<sup>-1</sup>) and sara method of sowing with recommended dose of fertilizer (120 kg N+ 60 Kg P<sub>2</sub>O<sub>5</sub>+ 40 Kg K<sub>2</sub>O ha<sup>-1</sup>.) and timely sowing (2<sup>nd</sup> week of November) was used during all the three years for conducting FLD's. Adjacent field of 0.20 ha size was considered as control plot for comparison (i.e. farmers practice).

The frontline demonstration plots were regularly visited by the scientist of the AICRP on Irrigation Water Management, MPKV, Rahuri. The yield data were collected from both the demonstration and farmers practice were

collected and analyzed with suitable statistical tools and procedure. The statistical tools use to find out technology gaps (Samui et.al.2000) as follows.

$$\text{Percent increase in yield} = \frac{\text{Demonstration yield} - \text{Farmers practice}}{\text{Farmers practice}} \times 100$$

$$\text{Technology gap} = \text{Potential yield} - \text{Demonstration yield}$$

$$\text{Extension gap} = \text{Demonstration yield} - \text{Yield under farmers practice}$$

$$\text{Technology index} = \frac{\text{Potential yield} - \text{Demonstration yield}}{\text{Potential yield}} \times 100$$

### RESULTS AND DISCUSSION

#### Wheat yield

The data on wheat FLD's yield during the three years is presented in table 1. The results revealed that due to frontline demonstration on wheat an average yield was 29.98 q ha<sup>-1</sup> under demonstrated plots as compared to farmers practice 25.20 q ha<sup>-1</sup>. The wheat yield was higher by 18.84% over the prevailing farmers practice. The results indicate that the higher average grain yield in demonstration plots is due to adoption of new agricultural technologies as per recommendations. The results are in close conformity with research results of Sharma et.al.(2016) and Singh (2017).

#### Technology gap

The technology gap was 9.17, 7.57 and 13.32 q ha<sup>-1</sup> during 2013-14, 2014-15 and 2015-16, respectively. The average technology gap found was 10.02 q ha<sup>-1</sup>. The technology gap observed may be attributed to the dissimilarity in the soil fertility status, agricultural technologies and climatic situations.

#### Extension gap

An extension gap between demonstrated technology and farmers practice ranges from 3.83 to 5.65 q ha<sup>-1</sup> during different three years. On an average extension gap under three year FLD programme was 4.78 q ha<sup>-1</sup> which emphasized the need to educate the farmers through various extension means i.e. propaganda of frontline demonstration for adoption of improved production and protection technologies, to revert the trend of wide extension gap. The extension gap can be subsequently change with use of latest production technologies with high yielding varieties.

#### Technology index

The technology index shows the feasibility of the demonstrated technology at the farmers field. The technology index varied from 18.93 to 33.30 per cent (Table 1). On an average technology index was observed 25.05

**Table 1. Performance of frontline demonstration on wheat.**

Year	No. of Trials	Area ha.	Average yield (q ha <sup>-1</sup> )		Increase in Yield (%)	Techno-logical gap (q/ha)	Exten-sion gap (q/ha)	Techno-logical index (%)	Net Returns Rs. ha <sup>-1</sup>		B:C Ratio	
			Demons-tration plot	Farmer's practice					Demons-tration plot	Farmer's practice	Demons-tration plot	Farmer's practice
2013-14	2	0.20	30.83	25.98	18.67	9.17	4.85	22.93	30502	23539	2.05	1.88
2014-15	2	0.20	32.43	26.78	21.10	7.57	5.65	18.93	35920	26430	2.34	2.04
2015-16	2	0.20	26.68	22.85	16.76	13.32	3.83	33.30	14651	8177	1.39	1.22
Average			29.98	25.20	18.84	10.02	4.78	25.05	27024	19382	1.93	1.71

per cent during three years of FLD programme. It may be due to uneven and erratic rainfall and different soil type. The results are in corroboration with the findings of Dhaka et.al. (2010) and Singh (2017)

#### Economic return

The lower the value of technology index more is the feasibility of the technology. The inputs and outputs prices of commodities prevailed during the study of demonstration were taken for calculating net return and benefit: cost ratio (Table 1). The cultivation of wheat under improved technologies gave higher net returns of Rs. 30502, 35920 and 14651 ha<sup>-1</sup> respectively as compared to farmers practice. Similar findings were reported by Singh (2017). The benefit cost ratio of wheat cultivation under improved cultivation practices were 2.05, 2.34 and 1.39 and 1.88, 2.04 and 1.22 under farmer's practices in all the years. This may be due to higher yield obtained under improved technologies compared to farmers practice. This finding is in line with the findings of Mokidue et al. (2011).

#### CONCLUSION

On the basis of the results of frontline demonstrations conducted, the yield and returns in wheat crop increased substantially with use of improved production technology. The productivity gain under FLD's over existing practices of wheat cultivation created awareness and motivated the other farmers to adopt improved production technologies of wheat in the district.

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