

Evaluation of Front Line Demonstration on Barley crop in KVK Bichpuri, Agra

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Abstract

Adoption of improved new agriculture technology is a crucial aspects under enhancing agriculture production at a faster rate. This aspect front line demonstration technology is one of the most powerful tools for transfer of technology for enhancing agriculture production. The present study was conducted for evaluation of front line demonstration technology of barley and its economics. The front line demonstration conducted at farmers field in Agra district during rabi season 2016-17. The improved new agriculture technology in front line demonstration technology recorded additional yield over farmer practices. The grain yield of barley increased under front line demonstration by 12.00 q/ha (2016-17) over farmer practices. Adoption of improved package of practices under FLDs in barley cultivation recorded higher B:C ratio (2.30:1) as compared to farmers practices (1.73:1) and net returns under FLDs was Rs 36261 and farmer practices Rs19048 observed. Improved technology (FLDs) produced higher yield of (42.80 q/ha) compared to farmer practices (30.00q/ha). The front line demonstration technology was more profitable as compared to farmer practices.

Keywords: Front Line Demonstration, Technology, Production, Economics, Barley

Introduction

Barley (*Hordeum vulgare* L.) is important multipurpose winter crop. During in 2012-13, 1.75 million tons of barley was produced from 0.69 million hectares with per hectare productivity 2521 kg/ha and major grown states are U.P, Rajasthan, M.P, Bihar, Punjab, Haryana, H.P and J&K (DWR, Karnal).

Barley lower cost of cultivation and low inputs demand helps in its preference by the farmers of arid and semi-arid regions. The major constraints limiting barley production is poor fertility status of coarse textured sandy soils coupled with imbalanced nutrition, out dated varieties and lack of modern technologies. The use of suitable fertilizers in appropriate doses is considered one of the most important factors for increased yield of crop per unit area. Zia et al. (1991) indicated that the use of correct fertilizer can increase yield up to 50% fertilizer recommended level increase grain yield as well as its contributing characters like plant height, tillers per plant.

The easiest way to boost the productivity is through balanced fertilization to the undernourished crop (Chaudhary et al., 2002).

The front line demonstration is most effective tool for transfer of Cost effective technologies among the farmers. Therefore, front line demonstration was conducted during rabi seasons of the year 2016-17 on selected farmer field of the operation area of Krishi Vigyan Kendra Bichpuri, Agra with the objective of exhibiting the performance of balanced fertilizer application of barley crop.

Materials and Methods

The front line demonstration is one of the most powerful tools for transfer of new technology. The present study was conducted for the Evaluation of front line demonstration on Barley crop conducted during 2016-17 in rabi season at Krishi Vigyan Kendra Bichpuri, Agra (U.P). The soil of the farmers field were sandy-loam in texture and medium phosphorus, low organic carbon and nitrogen.

The Technology used for Front line demonstration was recommended dose of fertilizer. Provided by krishi vigyan Kendra were phosphorus sources of di ammonium phosphate, potash sources of murat of potash, sulphur source of elemental sulphur, zinc sources of zinc sulphat at 33 percent and high yielding varieties k-508 of barley recommended in

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the area and non monetary in put like timely sowing, seed rate, plant spacing, weeding, thinning, harvesting, threshing, chemical use, etc practices were taken cane through farmers training, field visit, etc and production data of barley were observation separate farmer after threshing.

Treatments:

Farmer Practices (T-1): 100 kg/ha Nitrogen, 46 kg/ha Phosphorus and no use Potash.

Recommended Dose of fertilizers under FLDs (T-2): 120kg kg/ha Nitrogen, 60 kg/ha Phosphorus, 40 kg /ha Potash, Zinc (33%) 12.5 kg, Sulphur 20 kg /ha

Economics of the treatments:

Economics of the treatments Recommendation and adoption of any practice by cultivators depends upon its economics. Therefore, it becomes essential to work out economics of the treatments tested for judging the best treatment under study, for getting higher net profit per hectare.

Cost of cultivation (Rs./ha):

For different treatments total cost was calculated on the basis of prevailing market rates of fertilizer, field preparation, sowing of seeds, labour charges, cultural and intercultural operations as well as expenditure herbicides, harvesting and threshing of the crop produce etc.

Gross return (Rs. /ha):

For different treatments gross returns were calculated on the basis of prevailing market rate of produce.

Net return (Rs. /ha):

It was calculated treatment wise. The cost of cultivation per hectare was subtracted from the gross income for computing net returns of each treatment. Net profit (Rs./ha) = Gross return (Rs./ha) - Cost of cultivation (Rs./ha)

The BCR formula was calculated in given below.

$$BCR = \frac{\text{Gross return}}{\text{Gross cost}}$$

Results and Discussion

Table 1: Grain yield of farmer practices and front line demonstration technology

Treatment	Grain yield (kg/ha) 2016-17	Number of Farmer
Farmer practices (T-1)	30.00	04
Recommended technology under FLD (T-2)	42.80	04
SEM ⁺	1.858	00
CD at 5%	8.662	-

(i) *Grain yield production:*

The grain yield increased nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg /ha, Zinc(33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) was higher against nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmer Practices). The highest grain yield was recorded from under demonstration nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg/ha, Zinc (33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) in the year and more than 12.80 q/ha increase grain yield was recorded over the nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmer Practices). The similar results of yield enhancement in front line demonstrations has been documented by Jeenangar et al. (2006), Hiremath et al. (2007), Dudi and Meena (2012), Patel et al. (2013), Singh et al., (2016).

(ii) *Economics of Demonstration:*

Economic indicators i.e. gross cost, gross return, net return and benefit cost ratio of front line demonstration are presented in Table 2. The data clearly revealed that, the net income from front line demonstration was substantially, front line demonstration technology nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg /ha, Zinc(33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) higher than against nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmer Practices). The maximum net return of nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg /ha, Zinc(33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) Rs 36261.00 comparison to nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmer Practices) Rs 19048.00 per hectare respectively and that clear nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg/ha, Zinc(33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) more net return than nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmer Practices) results supported by Sreelakshmi et al.

Table 2: Economics of farmer practices and front line demonstration technology

Treatment		Gross Cost(ha ⁻¹)	Gross return(ha ⁻¹)	Net return(ha ⁻¹)	B:C Ratio
2016-17	2016-17	2016-17	2016-17		
Farmer practices (T-1)		25952	45000	19048	1.73:1
Recommended technology under FLD (T-2)		27939	64200	36261	2.30:1

(Barley @ 1500Rs Per quintal)

(2012). Income is attributed to the technological intervention provided in front line demonstration.

Economic analysis of the yield performance revealed the BCR of front line demonstration plated was observed nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg /ha, Zinc(33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) higher than nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmer practices). The nitrogen 100 kg/ha, phosphorus 46 kg/ha (Farmers technology) and nitrogen 120kg kg/ha, phosphorus 60 kg/ha, potassium 40 kg /ha, Zinc (33%) 12.5 kg, Sulphur 20 kg /ha (Front Line Demonstration technology) were 1.73: 1 and 2.30:1 respectively. Hence, favorable benefit cost ratio proved the intervention made under front line demonstration and convinced the farmers on the utility of intervention.

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