

Role of On-Farm Trial in production enhancement of wheat crop

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Abstract

The extent of adoption of improved new agriculture technology is a crucial aspects under innovation diffusion process and the most important for enhancing agriculture production at a faster rate. These aspect On Farm Trial technology is one of the most powerful tools for assessment and transfer of technology. The present study was find out the production enhancement and economics through on farm trial technology of wheat on farmers field in Agra district conducted during 2016-17 in rabi season was carried out at Krishi Vigyan Kendra Bichpuri , Agra (U.P). The technology of On Farm Trial recorded additional yield over farmer practices under OFTs the grain yield of wheat was increased 64.36% over farmer practices. Adoption of improved package of practices under OFTs in wheat cultivation recorded higher B:C ratio 1.85:1 as compared to farmers practices 1.45:1 and net returns under OFTs was Rs 39244 and farmer practices Rs16200 observed. Improved technology (OFTs) yield was 52.60 q/ha compared to farmer practices yield 32.00q/ha. . On Farm Trial was more profitability compared to farmer practices.

Key words: Wheat, On Farm Trial ,Yield, Enhancement,Economics.

Introduction

Wheat (*Triticum aestivum*) is the second important cereal crop for the majority of world's populations. It is the most important staple food of about two billion people (36% of the world population). It exceeds in acreage and production of every other grain crop (including rice, maize, etc.) and is therefore, the most important cereal grain crop of the world. Wheat is a major ingredient in such food as bread, porridge, crackers, biscuits, muesli, pancakes, pasta and noodles, pies, pastries, pizza, polenta and semolina, cakes, cookies, muffins, rolls, doughnuts, gravy, beer and vodka. Wheat grain also contains carbohydrate, protein minerals, vitamins and fats (lipids). In 100gm wheat provides 327 kilocalories. With a small amount of animal or legume protein added, a wheat-based meal is highly nutritious.

The main aim of Krishi Vigyan Kendra is transfer of technology through on and off campus training programmes for farmers and extension functionaries, front line demonstrations, on farm trials and other extension activities. on farm trials on different crops grown in the district is the mandatory activity of

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Krishi Vigyan Kendra. Krishi Vigyan Kendra has given on farm trials on Wheat crop sanctioned by Attari, Kanpur. Thus, Role of On Farm Trial in production enhancement of wheat production technology given by Krishi Vigyan Kendra, Bichpuri,Agra . Conducting to OFT on farmer field help to identify potential technology compared to farmer practices and powerful tool to find out the suitable particular technology for a region(G.C.singh et al., 2013) it help in improving the economic and social status.

Material and Methods

On Farm Trial technology is one of the most powerful tools for assessment and transfer of technology. The present study was find out the production enhancement and economics through on farm trial technology of wheat on farmers field in Agra.the trial was 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 the OFT were recommended dose fertilizer . Farmers provide by

krishi vigyan kendra phosphorus sources of dai 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 PBW-550 of wheat recommended for 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 wheat were observation separate farmer after threshing.

Treatments:

Farmer Practices (T-1) : 100 kg/ha N , 46 kg/ha P and no use potash.

Recommended Dose under OFTs (T-2) : 120kg kg/ha N, 60 kg/ha P, 40 kg /ha K, Zinc(33%) 12.5 kg, Sulphur 20 kg /ha with seed 120 kg/ha (variety)-PBW550

The fertilizer applied in split dose half nitrogen, full phosphorus, full potash should be basal placed at the time of sowing and rest dose of nitrogen one fourth applied abut 30 days and 60 days after sowing and full dose of sulphur and zinc applied in before last field preparation. The BCR formula was calculated in given below.

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

Results and Discussion :

(i) Grain yield

The data(Table-1) wheat yield indicated that the OFTs given a good impact on the farming community of Agra district as they were motivated by the new agricultural technologies adopted in the trial, recorded show significant effect on grain yield and obtained on different treatment are farmer practices (local check) average yield was 30 q/ha and recommended OFTs technology (120kg per hectare nitrogen,60 kg per hectare Phosphorus and 40 kg / ha potash, Zinc (33%) 12.5 kg, Sulphur 20 kg per/ha, and seed 120 kg/ha (variety- PBW550) average yield was 52.6 q/ha and recommended technology more profitable. The 22.6 q/ha more yield was observed. The technology of On Farm Trial recorded additional yield over farmer practices under OFTs the grain yield of wheat was increased 64.36%. The results are in close conformity with the research results

of Sharma et al. (2016).

Table 1: Grain yield and Dry matter yield of farmer practices and On Farm Trial

Treatments	Av, Dry matter yield (q/ha)	Av. Grain yield(q/ha)	Number of Farmer
T1	30.00	32.00	04
T2	48	52.60	04
C.D at 5%	1.440	3.252	00
S.Em+	0.408	0.922	00

(ii) Dry matter yield production

The dry matter yield significantly increased under (OFTs) recommended technology (120kg per hectare nitrogen, 60 kg per hectare Phosphorus and 40 kg / ha potash, Zinc (33%) 12.5 kg, Sulphur 20 kg per/ha with seed 120 kg/ha (variety- PBW-550) compared to farmer practices. Dry matter yield under recommended technology was 48 q/ha against 30 q/ha farmer practices. The 18 q/ha dry matter yield was higher against farmer practices .

(iii) Economics of On Farm Trails

Economic indicators i.e gross cost ,gross return , net return and benefit cost ratio of On Farm Trail of wheat crop are presented in Table 2 the data clearly revealed that, net income from On Farm Trail were substantially , T-2 (120kg per hectare nitrogen,60 kg per hectare Phosphorus and 40 kg / ha potash ,Zinc (33%) 12.5 kg, Sulphur 20 kg per/ha, and seed 120kg/ha (variety- PBW550) higher than against T-1(farmer practices). The maximum net return of treatment T-2 (120kg per hectare nitrogen, 60 kg per hectare Phosphorus and 40 kg / ha potash, Zinc (33%) 12.5 kg, Sulphur 20 kg per/ha, and seed 120 kg/ha (variety-PBW550) Rs39244.00 comparison to treatment T-1 (Farmer practices) Rs 16200.00 and treatment T-2 (120kg per hectare nitrogen, 60 kg per hectare Phosphorus and 40 kg / ha potash , Zinc (33%) 12.5 kg, Sulphur 20 kg per/ha, and seed 120 kg/ha (variety - PBW550) Rs 23044.00 per hectare respectively more higher income than T-1 (farmer practices), clear that T-2 (120kg per hectare nitrogen,60 kg per hectare Phosphorus and 40 kg / ha potash , Zinc (33%) 12.5 kg, Sulphur 20 kg per/ ha, and seed 120 kg/ha (variety - PBW550) more net return for T-1 (Farmer practices). Income is attributed

to the technological intervention provided in On Farm Trial.

The higher cost of cultivation Rs 46231.00 involved in OFTs as compared to Rs. 35800.00 under Farmers practice (Table 2). The OFTs plots higher mean gross returns (Rs. 85475.00 /ha) as compared to (gross returns Rs. 52000.00) farmers practice.

Table 2: Economics of yield on farmer practices and On Farm Trial

Treatments	Gross Cost (Rs./ha)	Gross return (Rs./ha)	Net return (Rs./ha)	B C: Ratio
T1	35800.00	52000.00	16200.00	1.45:1
T2	46231.00	85475.00	39244.00	1.85:1

[Wheat @ 1625Rs Per quintal]

Economic analysis of the yield performance revealed the BCR of On farm trail plotted were observed T-2(120 kg per hectare nitrogen, 60 kg per hectare Phosphorus and 40 kg / ha potash, Zinc (33%) 12.5 kg, Sulphur 20kg per/ha, and seed 120 kg/ha (variety- PBW550) higher than Farmer practices. On Farm Trial (120kg per hectare nitrogen, 60 kg per hectare Phosphorus and 40 kg / ha potash, Zinc (33%) 12.5 kg Sulphur, 20 kg per/ha, and seed 120 kg/ha (variety - PBW550) was 1.85:1 compared to T-1 (Farmer practices) 1.45:1 respectively. Hence, favorable benefit cost ratio proved the intervention made under On Farm Trail and convinced the farmers on the utility of intervention. Sreelakshmi et al. (2012) and Joshi et al. (2014) also reported higher net returns

and B:C ratio in the demonstrations on improved technologies compared to the farmers practices and are at par with results of the present study which also resulted in higher net returns through demonstrations on improved technologies.

Conclusion

Thus, it may be concluded that the yield and returns in wheat crop increased substantially with the improved production technologies. However, the yield level under OFTs was better than the farmer practice

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