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Impact of front-line demonstrations (FLDs) on productivity and profitability of Maize in district Ramban

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Abstract

The present research study was conducted to assess the impact of Front-Line Demonstrations (FLDs) provided by KVK-Ramban on farmer fields. The results of 100 FLDs reveal that average yield of demo plots were 27.6 qtls/ha as compared to 19.2 qtls/ha of check i. e local varieties used by the farmers. The increase in the yield by the varieties provided under FLDs was about 43.75 percent over local ones. While the FLDs gave a net return of rupees 29,200 per hectare, the net return from check was only 15000. Accordingly the benefit cost ratio calculated was much higher for FLDs (2.02) as compared to check (1.59). It is thus clear that profitability from the demo variety was much higher than the local check.

Keywords: FLDs, net returns, cost of cultivation, B: C ratio

Introduction

The Krishi Vigyan Kendras (KVKs) district level institutes are an important component of the front-line extension system of the country. Since the establishment of first KVK in Puducherry in 1974, these have grown up in numbers to cover whole of the country. Although, the initial idea of setting up of these KVKs was to provide vocational training to rural youths in agriculture and other allied sectors; but with the passage of time the roles and responsibilities of these KVKs changed. Today KVKs provide a platform for interface between farmers, researchers and extension functionaries to address the problems of agriculture and allied sectors. These institutions are engaged in on farm testing (OFTs) to assess the location specific needs of the farm sector, front line demonstrations (FLDs) to establish production potential of technologies on farmers' fields; to conduct training programmes for farmer, youths, farm women for their skill development, to act as a resource and knowledge centre of agricultural technologies with the ultimate aim of improving the agricultural economy of the country in general and the state in particular in which they are located. Presently there are 731 KVKs all across the country (ICAR, 2023) [4]. These institutes have been recognized as an effective link between agricultural research and extension system in the country (Venkatasubramanian *et. al.*, 2009) [5].

One of the important mandates of KVKs has been the lying of On Farm Trials OFTs and Front-Line Demonstrations (FLDs). While 'On-Farm Testing' (OFT) is done for identifying technologies in terms of their location specificity, Front Line Demonstrations (FLDs) on various crops aim to establish the production potential of new technologies in the farmer fields and to generate production data and feedback information. Each of the KVKs conducts FLDs covering various crops on a considerable area in the villages falling under their jurisdiction. As such it becomes imperative that the output of these FLDs in terms of yield and economics be worked out and documented. The present study was thus conducted to assess the impact of various FLDs on maize in terms of its productivity in the farms and profitability of the farmer.

Locale of the study

The present study was conducted in district Ramban. Located in the lap of Pir Panjal range of the mighty Himalayas and amongst one of the 20 districts in the Union Territory of Jammu and Kashmir, Ramban as an independent district was carved out of erstwhile Doda District in the year 2007. Agriculture is the main source of livelihood in the district along with Horticulture and Livestock also as other important sectors contributing to the livelihood security of the population of the region. Crops are grown from an altitude of 723 meters in Ramban to about 3000 meters amsl in Gool. The cropping intensity of the district is more than 150 and most of the cultivated area is under double cropping of Maize-Fodder, Maize-Wheat and Paddy-Fodder/Oilseeds. Maize along with mix cropping of Rajmash is also grown here.

Research Methodology

In the *Kharif* (2022), 100 Front Line Demonstrations (FLDs) were laid out on farmer fields. These demonstrations were on Hybrid/composite Maize varieties Star Gagan Gold, Kh. 517 and Kh. 612 that covered an area of 20 hectares in different villages of this district. A total of 100 farmers were selected. 54 no. of farmers were from SC/ST community while 46 no. of farmers were from general and other categories. The data regarding yield was collected from individual farmers. The yield data were analyzed to arrive at the productivity of the different varieties and overall productivity of the variety given. The cost of cultivation was also calculated based on the inputs given by the farming community both for the demo. Variety as well as the local check which the farmers; have been cultivating for so many years. Based on the cost of cultivation and the overall productivity the gross income, net income and benefit; cost ratio was worked out. The overall economics was arrived at by:

% yield change=avg. yield of demo plots-avg. yield of check plots/avg. yield of demo. plots

Net Income = Gross Income-Cost of Cultivation

Benefit: Cost (B:C) ratio = Gross Income/Cost of Cultivation

Results and Discussions

The data in table 1 depicts the no. of farmers' the area covered the average yield of demo. Plots and check plots and the percentage increase in yields. From the table it is clear that the average yield of demo plots was 27.6 qtls/ha as compared to 19.2 qtls/ha of check i. e local varieties used by the farmers. The increase in the yield by the varieties provided under FLDs was about 43.75 percent over local ones.

Table 1: Crop, varieties, total area and no. of farmers

Crop	Variety	Hybrid/Composite	Area (ha)	No. of farmers'			Yield		% Age increase
			(ha)	SC/ST	Others	Total	Demo.	Check	
Maize	SGG K-517 K-612	Hybrid	20	54	46	100	27.6	19.2	43.75

*Star Gagan Gold (SGG), K-Kanchan

If we see the intra-varietal variation in the yields of three hybrid varieties demo. plots (Table 2 & Fig.1)' we can infer that SGG gave the maximum yield of 29.4 qtls. per hectare followed by Kanchan 517 with an average yield of 26.9 qtls per hectare and Kanchan- 612 with an average yield of 26.5 qtls. per hectare.

Table 2: Yield of different Maize hybrids

Hybrid/Composite	No. of farmers covered	Yield (qtls./ha)
SGG	50	29.4
K-612	25	26.5
K-517	25	26.9

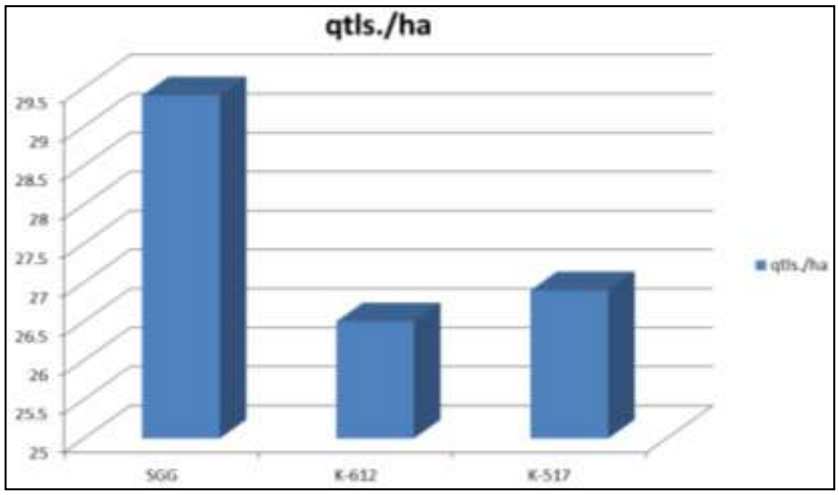


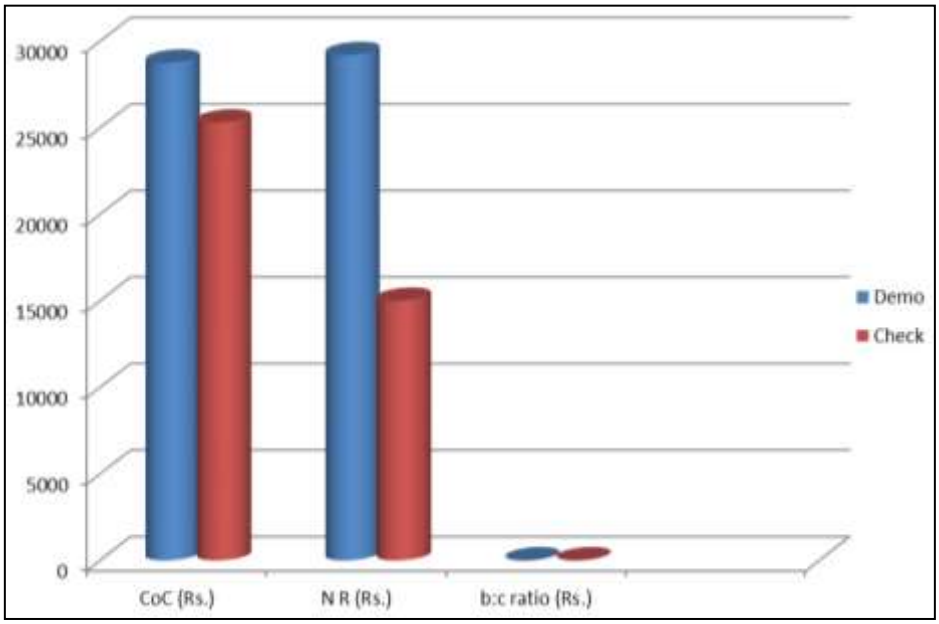
Fig 1: Intra-varietal yield variation

Table 3: Economics of Maize production

Cost of Cultivation (Rs.)		Gross Return (Rs.)		Net Return (Rs.)		b:c ratio (Rs.)	
Check	Demo.	Check	Demo.	Check	Demo.	Check	Demo.
25,300	28,760	40,300	57,960	15,000	29,200	1.59	2.02

From table 3, (Fig. 2) it is evident that the Net return from the FLDs was much higher than the plots under check i. e local varieties used by the farmers of the region. While the FLDs gave a net return of rupees 29,200 per hectare, the net

return from check was only 15000. Accordingly the benefit cost ratio calculated was much higher for FLDs (2.02) as compared to check (1.59). It is thus clear that profitability from the demo variety was much higher than the local check.



CoC: Cost of Cultivation, NR: Net Returns, b:c benefit cost ratio

Fig 2: Graphical representation of the economics of maize production

Conclusion

The above research study thus concludes that the FLDs have played an important role in increasing productivity and profitability of the farming community of this region. The increase in yield under FLDs of different crops has also been reported by Haque (2000) [1] and Naberia *et al.*, (2015) [2]. Front Line Demonstrations (FLDs) have proved to be a potent intervention in making a positive impact on enhancement of yields of farming communities all across the country. This has ultimately led to the augmentation in production leading to food security in the country.

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