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Performance of wheat (Variety VL 892) under front line demonstrations on Farmers field

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Abstract

Front line demonstrations is a proven method for transfer of technology in Agriculture. Most of the transfer of technology through front line demonstrations is restricted to areas having wider road connectivity and progressive farmers. Most of the times, inaccessible areas and uneducated tribal farmers have least access to these front line demonstrations. Front line demonstrations on wheat were laid in inaccessible and tribal areas of Poonch district during rabi 2012-13 under ICAR Seed Project component tribal Sub Plan. The study was conducted to find out the impact of front line demonstrations in terms of plant height, grains/ear, 1000 grain weight, grain and straw yield (q/ha), gross returns, net returns and B:C ratio in comparison with check (Raj 3077). The average grain yield of wheat variety VL 892 was found to be more (31.6) as compared to the check (HS) (26.7). Gross returns (42592), net returns (23792) and B:C ratio (2.3) was recorded higher in wheat variety VL 892 as compared to check variety with gross returns (35977), net returns (18777) and B:C ratio (2.1).

Keywords: Front line demonstration, grain yield, B:C ratio

Introduction

Poonch is a border district of Jammu and Kashmir and majority of the farmers depend on agriculture for their livelihood. Wheat is one of the major crop of India and is cultivated in an area of 31.19 million ha with annual production of 95.91 m tones (Anonymous, 2015) ^[1]. In the state of Jammu and Kashmir, wheat occupy an area and production of 290.99 thousand hectares and 5819.5 thousand quintals of wheat respectively (Anonymous, 2014) ^[2]. Wheat is also main crop in Poonch district in *rabi season* grown and occupies an area of 15 thousand hectares (Anonymous 2014) ^[2] with production of 22725 quintals per hectare. The average productivity on wheat in Poonch district is very low (1518 kg/ha). In wheat, productivity is very low due to non availability of location specific varieties. Selection of suitable crop varieties according to the agroclimatic conditions may play crucial role in realizing the optimum production of any crop commodity (Singh *et al.*, 2008; Kaur *et al.*, 2017) ^[6, 3].

Materials and Methods

The present investigation was carried out in the Block haveli of Poonch district in 04 village panchayats. Poonch district of Jammu and Kashmir (India) is located on the southern slopes of Pir Panjal range and lies between 33° 25' to 34°10' north latitude and 73° 58' to 74° 35' east longitude. 25 front line demonstrations on wheat variety VL 892 were laid in an area of 5.0 hectares in Gulpur (05), Khari (06), Dara Dullian (06) and Jhullas (08). The sowing of wheat was completed between 17 to 20 November 2012. A total rainfall of 707.5 mm was received during the crop season between November to May during 2012-2013.

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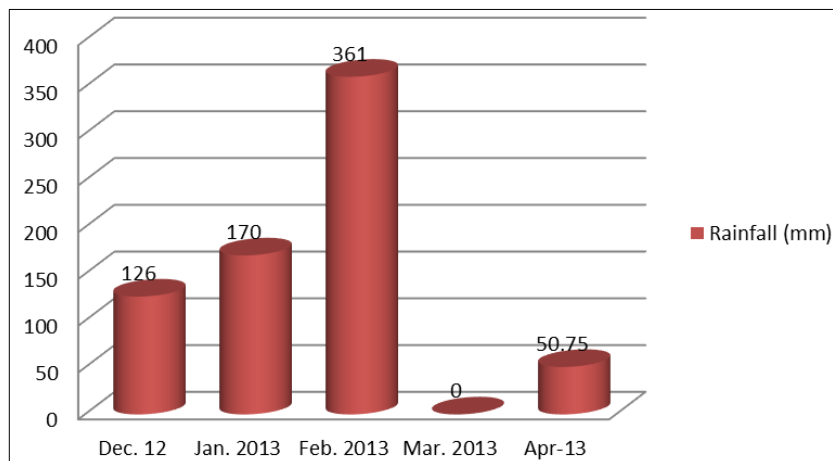


Fig 1: The rain fall

Table 1: Particulars showing the detail of Front Line Demonstrations on wheat

Crop	Wheat
Variety	VL 892
Condition	Rainfed
Blocks	Haveli Poonch
No. of FLDs	25
Area in hectares	5.0 ha
Panchayats/Villages	Gulpur (05), Khari (06), Dara Dullian (06) and Jhullas (08)
Date of sowing	17 to 20 November 2012
Seed rate	100 kg/ha
Technique of Sowing	Line sowing (kera) 22.5 cm apart
Nutrient Management	60:30:20
Harvesting	manual
Check	RAJ 3077

Certified seed of wheat (variety VL 892) was procured from Department of Agriculture Poonch. This is a late sown wheat variety suitable for restricted irrigation of North hill zone. The nutrient management (60:30:20) was practiced as per package of practices of SKUAST-J for rainfed areas and fertilizer was

distributed to the beneficiaries at the time of sowing under ICAR Seed project component tribal sub plan for demonstrations. 03 trainings were also imparted to the tribal beneficiaries

Table 2: Types of training campus and Programme

Date	Type of training (on/off campus)	Title of training programme
17.11.2012	On campus	Training on Method of improved seed production in wheat and Input distribution (seed, fertilizer)
20.02.2013	Off campus	Diseases and pest management of storage seed
24.03.2013	On campus	Methods of seed storage and distribution of storage bins

Wheat in demonstrations and check plot was harvested at physiological maturity stage. The data on plant height, grains/ear, was recorded from 10 plants in each demonstration and average plant height in cm and grains/ear were calculated from demonstration and check plot. ears/m² were recorded from two randomly selected 40 cm X 50 cm spots and expressed on per square meter basis while grains/ear from randomly selected 10 ears were counted and averaged. Data on 1000 grain weight was also recorded. Crop yield was determined by manually harvesting the produce from net plot area and expressed as quintals per hectare. Cost of production and monetary returns (gross and net returns) of demonstrated variety and check plots was calculated on the basis of market prices to compare the economic impact and to demonstrate the impact of technologies.

Results and Discussion

Data on number of tillers/m², grains/ear, ear length and 1000 grain weight in wheat crop is presented in table 1. Varieties varied considerably with respect to tillers per square meter whereas average grains per ear, ear length and 1000 grain

weight of demo variety was almost comparable to check. Under Palampur conditions, Pathania *et al.* (2018) [5] also reported that Varieties show significant differences with respect to tillers/m², dry matter accumulation, grains/spike. 1000-grain weight, and length of spike. Coventry *et al.* (2011) [4] also observed that varieties vary significantly with respect to plant height, heads/m², 1000 grain weight and grain yield. Corresponding to average grain yield of 31.6 quintals Demo variety VL 892, check recorded average yield of 26.7 q/ha. The average yield increase of demo variety (VL 892) over check (HS) under front line demonstrations was to the tune of 18.4 %. Higher grain yield in variety VL 892 can be attributed to higher number of tillers/m² and 1000 grain weight as compared to check variety. Kaur *et al.* (2017) [3] also reported that Grain yield of wheat crop is the combined effect of various yield attributing components. VL 892 also gave highest net returns per hectare (Rs. 23792) and benefit cost ratio (2.3) as compared to check which recorded lowest net returns (Rs. 18777) and B:C ratio (2.10). The higher gross returns, net returns and benefit cost ratio was on account of higher yield recorded in case of variety VL 892.

Table 3: Yield attributes of wheat variety VL 892 under front line demonstrations in Poonch

	Tillers/m ²		Grains/ear		Ear length (cm)		1000 grain weight (g)	
	VL 892	check	VL 892	check	VL 892	check	VL 892	check
Gulpur	256	242	42	40	10.1	9.4	44.6	43.2
Khari	220	226	38	37	9.8	9.5	45.4	43.6
Dara Dullian	238	202	40	37	10.0	9.4	45.8	43.4
Degwar	234	232	40	40	10.0	9.3	44.9	43.0
Average	237	226	40	39	10	9.4	45.2	43.3

Table 4: Yield and economics of wheat variety VL 892 under front line demonstrations in Poonch

	Yield (q/ha)		Cost of cultivation		Gross return (Rs./ha)		*Economics of demonstration (Rs./ha)			
	VL 892	check	VL 892	check	VL 892	check	Net Return		BCR	
							VL 892	check	VL 892	check
Gulpur	31.4	27.6	18800	17200	42390	37260	23590	20060	2.25	2.17
Khari	34.4	24.8	18800	17200	46440	33480	27640	16280	2.47	1.95
Dara Dullian	29.6	27.4	18800	17200	39960	36990	21160	19790	2.13	2.15
Degwar	30.8	26.8	18800	17200	41580	36180	22780	18980	2.21	2.10
Average	31.6	26.7	18800	17200	42592	35977	23792	18777	2.3	2.1

*Sale rate wheat @ Rs. 1350/quintal in 2013-14 (MSP)

Summary and Conclusion

It can effectively concluded that variety VL 892 performed better in terms of tillers/m², 100 grain weight and grain yield and thus realizing higher yield as compared to RAJ 3077 in 25 Front line demonstrations conducted on fields of tribal farmers. The authors want to express sincere gratitude to ICAR Seed Project component tribal Sub Plan for financial grant for conduct of front line demonstrations.

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