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Evaluation of Front Line Demonstration on Chick Pea in Shajapur District of MP

K. S. Bhargav*, N. S. Khedkar, Gayatri Verma, G. R. Ambawatia, Nishith Gupta and Neerja Patel

Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior

*Corresponding Author E-mail: ksbhargav@rediffmail.com

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ABSTRACT

Front line demonstrations on chick pea were organized in Pankhedi and Bhadoni villages of Shajapur district by Krishi Vigyan Kendra in Rabi seasons of 2011 and 12. The package of improved practices demonstrated included improved variety JG-130, Proper seed rate, Integrated nutrient management (20kg Nitrogen + 60 kg Phosphorus + 20 Kg Potash + rhizobium @ 5g/kg seed + PSB @ 5g/kg of seed + Ammonium Molebdate @ 1g/kg of seed), integrated pest management (Bird purchure @ 100-125 /ha + seed treatment with Trichoderma virdae @ 5g/kg seed + prophonophosh @ 1 lit/ha), Proper irrigation (Ist irrigation at the time of branching and IInd irrigation during the pod formation) and weed management. The result revealed that percentage increase in the yield in demonstrations over farmer practices was 34.4 and 37.2 in year 2011 and 2012 respectively. The benefit: cost ratios of chick pea cultivation under improved practices were 2.31 and 2.26 as compared to 2.02 and 1.94 under farmer practices for the two consecutive years.

Key words: *Front line demonstration, improved package of practices, Chick pea JG-130, Shajapur, RVSKVV.*

INTRODUCTION

Front line demonstrations (FLD) is one of the most powerful tools of extension because farmers, in general, are driven by the perception that "Seeing is believing". The main objective of front line demonstrations is to demonstrate newly released crop production and protection technologies and its management practices in the farmer's field under different agro-climatic regions and farming situations. During demonstration in the farmer's field, scientists are required to study the factors contributing higher crop production, field constraints of production and there by generate production data and feedback information.

Chick pea (*Cicer arietinum* L.) is the premier pulse crop widely consumed in india. It is a soil building crop, which fixes atmosphere nitrogen through symbiotic action.

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It is an important rabi season legume having extensive geo-graphical distribution and contributing 39 per cent to the total production of pulse in the country[1]. The major chick pea producing states are Madhya Pradesh, U P, Rajasthan, Naharastra, A P, Gujarat, Karnataka, Haryana, Bihar and West Bangal. In Shajapur district of Madhya Pradesh chick pea occupy 1.5 lac ha of land with 862 kg/ha productivity. Its productivity is far below the potential yield. Abiotic stresses and lack of knowledge about the .new technologies are responsible for declining yield potential. Realizing the importance of front line demonstrations in transfer of technologies, Krishi Vigyan Kendra, shajapur has conducted FLDs on chick pea in rabi season 2011 and 2012 at farmers field in the different village of Shajapur district with the objective of convincing farmer's and extension functionaries together about the production potentialities of the chickpea technologies for further wide scale diffusion. Adoption levels for several components of the improved technologies are low, emphasizing the need for better dissemination[2].

MATERIALS AND METHODS

The present study was carried out at Pankhedi and Bhadoni village of Shajapur district during the rabi season of 2011 and 2012 under the front line demonstration of pulse programme. The soil type of demonstrated field was vertisol with pH ranging 7.0 to 7.5 and average rainfall of the area was 1047.9 mm of which about 92.3 per cent is distrcibuted during June to September and only 7.7 per cent between October to May. The component demonstration of front line technology in chick pea was comprised of improved variety JG-130, Proper seed rate, Integrated nutrient management (20kg Nitrogen + 60 kg Phosphorus + 20 Kg Potash + rhizobium @ 5g/kg seed + PSB @ 5g/kg of seed + Ammonium Molebdate @ 1g/kg of seed), integrated pest management (Bird purchure @ 100-125 /ha + seed treatment with Trichoderma virdae @ 5g/kg seed + prophonophosh @ 1 lit/ha), Proper irrigation (Ist irrigation at the time of branching and IInd irrigation during the pod formation) and weed management (Table No 1). Control plot was also kept where farmers practices was carried out. Before conducting the demonstration, training to the farmers of respective villages was imparted with respect to envisaged technological interventions. Site selection, farmer's selection, layout of demonstration, farmer's participation etc, were considered as suggested by Choudhary[3].

Table No 1:- Description of Technological intervention and farmers practices under FLD on chick pea

Particulars	Technological intervention	Farmers Practices	Gap
Variety	JG-130	Local & old	Full gap
Land Preparation	Two ploughing after palewa	Two Ploughing	Partial Gap
Seed Rate	80 kg/ha	100-125 kg/ha	Partial Gap
INM	20kg Nitrogen + 60 kg Phosphorus + 20 Kg Potash + rhizobium @ 5g/kg seed + PSB @ 5g/kg of seed + Ammonium Molebdate @ 1g/kg of seed	No use of fertilizer	Full Gap
Sowing Method	RxR spacing- 40 cm	RxR spacing- 20-25 cm	Partial Gap
IPPM	Bird purchure @ 100-125 /ha + seed treatment with Trichoderma virdae @ 5g/kg seed + prophonophosh @ 1 lit/ha	Two or three spray of Insecticide in insufficient amount of water	Partial Gap
Irrigation	Ist irrigation at the time of branching and IInd irrigation during the pod formation	No irrigation	Full Gap
Weed Management	Two Hand Weeding	No weeding	Full Gap

The data on output of chickpea crop were collected from FLD plots, besides the data on control plot were also collected. To estimate the technology gap, extension gap, the technology index and harvest index , the following formulae have been used [4, 5 & 6].

(i) **Harvest Index (%):-** Harvest index was estimated from the following relationship.

$$\textbf{Harvest Index (\%)} = \frac{\text{Grain Yield}}{\text{Biological yield}} \times 100$$

(ii) $$\textbf{Increasing Yield (\%)} = \frac{\text{Demonstration Yield} - \text{Farmers Yield}}{\text{Farmers Yield}} \times 100$$

(iii) **Technology gap** = Potential Yield – Demonstration yield

(iv) **Extension gap** = Demonstration Yield – Farmers yield

(v) $$\textbf{Technology Index} = \frac{\text{Potential Yield- Demonstration Yield}}{\text{Potential Yield}} \times 100$$

RESULT AND DISCUSSION

The prevalent farming situation in the Shajapur district being characterized chick pea during rabi season under rainfed condition one of the greatest lacunae faced by the farmer's of this area is lack of soil moisture. The result indicates that the frontline demonstration has given a good impact over the farming community as they were motivated by the new agricultural technology applied in the FLD plots. The high yielding variety had performed well when compared to local check.

The percentage increase in the yield over farmer practices was 34.4 and 37.2 in year 2011 and 2012 respectively. The mean harvest index was found 38.47% in the demonstration and 34.34% in the farmer practices.

The technology gap is the gap in the demonstration yield over potential yield were 380 kg/ha and 367 kg/ha in the year 2011 and 2012 respectively. The technology gap observed may be attributed to dissimilarly in the soil fertility status and weather conditions as well as the soil moisture availability.

The Extension gap of 415 kg/ha and 443 kg/ha were recorded in the year 2011 and 2012 respectively. This emphasized the need to educate the farmer's through various means for more adoption of improved high yielding varieties and newly improved agricultural technologies to bridge the wide extension gap. More and more use of new high yielding varieties by the farmers will subsequently change this alarming trend of galloping extension gap. The new technologies will eventually lead to the farmers to discontinue of old varieties with new technologies. This high extension gap requires urgent attention from planners, Scientists, Extension personnel and development departments.

The technology indices were found 19% and 18.35% in the year 2011 and 2012 respectively. This index shows the feasibility of the evolved technology at the farmer's field. The feasibility of the technology will be more if the value of technology index is lower.

Economics evaluation of the demonstrated package revealed that its adoption involved an additional cost of Rs 3640/- per ha over farmer's practice. The inputs and outputs prices of commodities prevailed during the study of demonstrations were taken for calculating gross return, net return and benefit cost ration (Table No 3). The cost of cultivation, on an average, exceeded by Rs 3640 per ha in demonstrated package as compared to farmer's practices. This additional cost led to increased average net returns by Rs 11235 per ha, which was higher by about 56%. Similar findings were reported by [7, 8]. The benefit cost ratios of under

recommended practices were higher (2.31 and 2.26) as compared to farmers practice (2.02 and 1.94). This may be due to higher yield obtained under recommended practices compared to farmer's practices. Similarly results has earlier being reported on chickpea by [9,10 & 11].

Table 2: Grain yield, harvest index, Technology gap, extension gap and technology index of Chick pea JG-130

Year	Crop	Variety	Area (ha)	No of farmers	Grain Yield (q/ha)			% increase over FP	Straw yield (q/ha)		Harvest Index (%)		Technology Gap (q/ha)	Extension Gap (q/ha)	Technology Index (%)
					Potential	RP	FP		RP	FP	RP	FP			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2011	Chick pea	JG-130	14	35	20	16.2	12.1	34.4	25.6	22.65	38.76	34.82	3.80	4.15	19.00
2012	Chick pea	JG-130	14	35	20	16.3	11.9	37.2	26.4	23.25	38.17	33.86	3.67	4.43	18.35
Average			**14**	**35.00**	**20.00**	**16.27**	**11.98**	**35.83**	**26.00**	**22.95**	**38.47**	**34.34**	**3.74**	**4.29**	**18.68**

Table 3: Economics evaluation of demonstrated package of practices

Year	No of Demonstration	Yield (q/ha)		% increase over FP	Gross Expenditure (Rs/ha)		Gross Return (Rs/ha)		Net Returns (Rs/ha)		B:C Ratio	
		RP	FP		RP	FP	RP	FP	RP	FP	RP	FP
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**14**	**15**
2011	35	16.2	12.1	33.9	24580	21000	56700	42350	32120	21350	2.31	2.02
2012	35	16.3	11.9	37.0	25200	21500	57050	41650	31850	20150	2.26	1.94
Average	**35**	**16.25**	**12.0**	**35.43**	**24890.00**	**21250.00**	**56875.00**	**42000.00**	**31985.00**	**20750.00**	**2.29**	**1.98**

CONCLUSION

The result of front line demonstration on the package of practices brought out that by its adoption, the farmers can realize higher yields and net profit in chickpea cultivation. These practices may be popularized in this area by extension agencies to bridge the higher extension gap. The use of new production technologies will substantially augment the income as well as the livelihood of local population.

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