The Pharma Innovation Journal 2021; SP-10(7): 574-576

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2021; SP-10(7): 574-576

www.thepharmajournal.com
Received: 16-05-2021
Accepted: 18-06-2021

SS Dhakad
RVSKVV, Krishi Vigyan Kendra, Shajapur, Madhya Pradesh, India

NS Khedkar
JNKVV College of Agriculture, Ganjbasoda, Madhya Pradesh, India

KS Kirad
RVSKVV Krishi Vigyan Kendra, Dhar, Madhya Pradesh, India

SS Chauhan
RVSKVV Krishi Vigyan Kendra, Dhar, Madhya Pradesh, India

Ashish Shrivastava
JNKVV College of Agriculture, Ganjbasoda, Madhya Pradesh, India

Sanjeev Verma
JNKVV, Krishi Vigyan Kendra, Betul, Madhya Pradesh, India

Corresponding Author:
SS Dhakad
RVSKVV, Krishi Vigyan Kendra, Shajapur, Madhya Pradesh, India

Impact of front line demonstration on the yield and economics of green gram crop in Shajapur district of Madhya Pradesh

SS Dhakad, NS Khedkar, KS Kirad, SS Chauhan, Ashish Shrivastava and Sanjeev Verma

Abstract
Front line Demonstration on green gram were conducted in kharif 2016-17 and 2017-18 in operational villages of Krishi Vigyan Kendra, Shajapur with the objective of boosting the production and productivity of green gram with the latest and specific technologies. The net return is the best index of profitability of green gram crop and higher net return per ha of Rs 55695 was recorded for green gram crop under front line demonstration where as lower net return per ha of Rs 43316 was recorded under farmer's practices. Results also reveals that CFLD has given a good impact over the farming community of Shajapur as they were motivated by the improved agricultural technologies applied in the demonstration plots and yield with an increase of 25.8% higher than farmer's practices.

Keywords: demonstration, green gram, extension gap, technology gap

1. Introduction
Historically India is the largest producer, consumer and importer of pulses (Raj, A.D., Yadav, V. and Rathod, J. H. 2013) [1]. Although it is the world's largestpulse producer, India has imported 3.04 million metric tons (MT) of total pulses including 0.62 MT of moong bean during 2013-14 to meet its domestic demand. Moongbean or green gram (*Vigna radiata*) commonly known as Moong is an important pulse crop grown in India accounting 6.44% to the total production of pulses. Moong is an annual crop, cultivated mostly in rotation with cereals. It is an erected, highly branched, 60 to 76 cm tall plant (Oplinger *et al*, 1990) [2]. As it is a delicious pulse, it is considered as first choice among pulses particularly in northern parts of the country. It is a short duration crop, photo-insensitive with dense crop canopy as compared to other pulses. Being easily digestible, it is generally recommended by doctors for growing children, old persons and patients. Eating moong bean sprouts is indeed a very important part of healthy eating. It is grown in India during Kharif, can also be grown in spring or summer season inirrigated northern plains and as a rabi crop in southern and south-eastern parts, where the winter is quite mild. Being a leguminous crop it has the capacity to fix atmospheric nitrogen and it also helps in preventing soil erosion.
The FLD is an important tool for transfer of latest package of practices in totality to farmers and the main objective of this programme is to demonstrate newly released crop production and protection technologies and management practices at the farmer's field under real farming situation. Through this practice, the newly improved innovative technology, having higher production potential under the specific cropping system can be popularized and simultaneously feedback from the farmers may be generated on the demonstrated (Singh *et al*, 2012) [3]. Dhakad *et al*.2018 [4] concluded that Front line demonstration (FLDs) play a very important role to disseminate recommended technologies is shows the potential of technology resulting in an increased in yield at farmers level. The results convincingly brought out that the yield of chickpea can be increase with the intervention on recommended package of practices. These practices may be popularized in this area by the extension agency to bridge the higher extension gaps. Indian government imports large quantity of pulses to fulfill domestic requirement of pulses. In this regard, to sustain this production and consumption system, the Department of Agriculture, Cooperation and Farmers Welfare had sanctioned the project "Cluster Frontline Demonstrations on Kharif Pulses to ICAR-ATARI, Jabalpur through National Food Security Mission. This project was implemented by Krishi Vigyan Kendra, RVSKVV, Shajapur of Zone-IX with main objective to boost the production and productivity

of green gram through CFLDs with latest and specific technologies.

2. Method and Material

The field experiments of 0.40 ha each were conducted at 25 farmers fields (10 ha) of operational villages of Shajapur district of Madhya Pradesh during the year 2016-17 and 2017-18 to evaluate the productive performance of improved varieties of green gram. Before conducting demonstrations farmers were trained regarding different aspects of cultivation (Kumar *et al*, 2010) [5] to follow the package and practices for moong cultivation as suggested by the scientists of Krishi Vigyan Kendra Shajapur and need based input materials provided to the farmers. KVK has collected the soil sample from the demonstrations field and analyzed the sample and applied the fertilizer on the basis of soil test values. Green gram variety TJM-3 resistance to yellow mosaic virus (YMV), powdery mildew (PM) and maturity period 60-75 days was used for demonstrations.

Table 1: Description of technological intervention and farmers practices under CFLD

Particulars	Technological intervention (T1)	Farmers practices (T2)	Gap
Variety	TJM-3	Local/Non-descript	Full gap
Seed rate	18-20 kg/ha	30-35 kg/ha	Partial gap
Seed treatment	Carbendazim @ 2g, Imidacloprid @ 5 ml, Rhizobium @ 5g + PSB @ 5g/kg of seed	No seed treatment	Full gap
Manures &Fertilizers	Soil test based fertilizer application	No use of fertilizer	Full gap
Plant protection	IPM	Not timely spraying	Partial gap
Weed management	One hand weeding & one mechanical	Improper measures spraying of weedicides	Partial gap

The farmers followed the full package of practices like proper seed rate, seed treatment, fertilizer application on soil test value, weed and water management, IPM practices etc. In case of local check, the traditional practices were followed in existing varieties local available by the farmers (Table 1). Seed were sown 1st week of July by tractor driven seed cum fertilizer drill. Seeds were treated with carbendazim @ 2g, imidacloprid @ 5 ml, rhizobium @ 5g + PSB @ 5g/kg of seed. The yield data were collected from both CFLD and farmers practice plot (local check) and results are compiled. Data pertaining to crop growth, yield attributes and yield were collected at harvest and analyzed statistically. The benefit-cost (B: C) ratio was calculated based on the net return and cost of cultivation in each treatment. To estimate the technology index, extension gap, technology gap and harvest index, the formulae were considered as suggested by Samui *et al*, 2000 [6], Kadian *et al*, 1997 [7] and Sagar and Chandra 1997 [8].

(1) Technology gap = Potential yield-demonstration yield

(2) Extension gap = Demonstration yield -farmer's yield

$$(3)\ \text{Technology Index} = \frac{\text{Technology gap x100}}{\text{Potential Yield}}$$

3. Results and Discussion

Result of front line demonstrations indicated that the cultivation practices comprised under CFLD *viz.*, use of improved varieties, proper seed rate, seed inoculation by rhizobium and PSB culture, soil test based application of fertilizer, integrated pest management, hand weeding and mechanical weeding produced on an average of 25.80% more yield of green gram as compared to farmer's practices.

Table 2: Yield, technology gap, extension gap and technology index of demonstrations

Year	Area (ha)	No. of Demo	Potential yield (q/ha)	Yield q/ha		% increase over F.P.	Technology Gap (q/ha)	Extension Gap (q/ha)	Technology Index (%)
				R.P.	F.P.				
2016-17	10	25	12.00	10.2	8.6	18.60	1.8	1.6	15
2017-18	10	25	12.00	6.65	5	33	5.35	1.65	44.58
Mean	10	25	12.00	8.43	6.80	25.80	3.58	1.63	29.79

The technology gap is the gap in the demonstration yield over potential yield and it was found 3.58 qt/ha while extension gap was 1.63 qt/ha (Table 2). The technology gap observed dissimilar due to weather conditions, soil fertility status. Hence, location specific recommendation appears to be necessary to bridge the gap between the yields. But to minimize the extension gap it is needed to educate the farmers through various means for more adoption of improved high yielding variety and recommended practices to bridge the wide extension gap. This extension gap requires urgent attention from planners, scientists, extension personnel, development department and NGOs working in the agricultural fields.

The technology index shows the feasibility of the evolved technology at the farmer's field. The lower the value of technology more is the feasibility of the technology. The technology index was found 29.8 % indicating the satisfactory performance of this variety in malwa region.

Table 3: Economic of Front line Demonstration for green gram crop

Year	Cost of cultivation (Rs/ha)		Gross return (Rs/ha)		Net return (Rs/ha)		B:C ratio	
	F.P.	R.P.	F.P.	R.P.	F.P.	R.P.	F.P.	R.P.
2016-17	16050	16700	59632	75480	43582	58780	3.72	4.52
2017-18	8450	10300	27000	35910	18550	26610	3.19	3.48
Mean	12250	13500	43316	55695	31066	42695	3.455	4.000

The data presented in Table 3 indicated that adoption of improved technology of green gram not only gives the opportunity of higher yield, but also provides higher benefit cost ratio *i.e.* 4.00 as compared to 3.40 in the farmer's practices. This may be due to higher yield obtained under recommended practices compared to farmer's practices. Similarly result has earlier being reported on moong by Bhan *et al.* 2014 [9] and on chickpea by Tomar *et al* 1999 [10], Tomar 2010 [11], Mokidue *et al.* 2011 [12] Singh *et al.* 2014 [13] and Dhakad *et al*. 2020 [14].

The data of front line demonstration recorded higher gross return and net return as compared to local check (Table 3). The gross and net returns were Rs. 55695 and Rs. 43316 in CFLD while in farmer's practices it was Rs. 42695 and Rs. 31066 respectively.

4. Conclusion

Cluster frontline demonstrations on green gram conducted in different villages of Shajapur district concluded that 25.8 per cent increase in yield observed in demonstration plot over farmer's practice. It was observed that potential yield can be achieved by imparting scientific knowledge to the farmers, providing the quality need based inputs and proper management. Horizontal spread of improved technologies may be achieved by the successful implementation of frontline demonstrations and various extensions activities like training programme, field day, exposure visit organized in CFLDs programmes in the farmer's fields. For wide dissemination of technologies recommended by SAUs and other research institute, more number of FLDs should be conducted.

5. References

1. Raj AD, Yadav V, Rathod JH. Impact of front line demonstrations (FLD) on the yield of pulses. Internat. J Scientific & Res. Public 2013;3(9):1-4.
2. Oplinger ES, Hardman LL, Kaminski AR, Combs SM, Doll JD. Department of Agronomy and Plant Genetics, University of Minnesota, St. Paul, MN. Online available at http://www.hort.purdue.edu/newcrop/afcm/mungbean.html. 1990.
3. Singh J, Dhillon BS, Astha, Singh P. Front line demonstration – An effective tool for increasing the productivity of summer *Moong* in Amritsar district of Punjab. An Asian J Soil Sci 2012;7(2):315-318.
4. Dhakad SS, Asati KP, Chouhan SS, Badaya AK, Kirar KS, Ambawatia GR. Impact of Front Line Demonstration on the Yield and Economics of Chickpea (*Cicer arietinum* L.) in tribal area of Madhya Pradesh, India. Int. J. Curr. Microbiol. App. Sci. 2018;7(05):3662-3666.
5. Kumar, Venkatta R, Ramanarao SV, Padmaiah M, Madhuri P. Production constraints and information needs of growers in Andhra Pradesh. Agric. Extn. Review, 2010, 21-24.
6. Samui SK, Maitra S, Roy DK, Mondal AK, Saha D. Evaluation on front line demonstration on groundnut (*Arachis hypogeal* L). J. Indian Society of Coastal Agric. Res 2000;18(2):180-183.
7. Kadian KS, Sharma R, Sharma AK. Evaluation of front line demonstration trials on oilseeds in Kangra Vally of Himanchal Pradesh. Ann. Agric. Res. 1997;18:40.
8. Sagar RL, Chandra. Ganesh Front line demonstration on sesamum in west Bengal. Agric. Extn. Rev 2004;16(2):7-10.
9. Bhan, Chander, Chawala, Seema, Sidhu BS, Bhati DS. Impact of front line demonstration on production technology of *Moong* (*Vigna radiata*) in Sriganganagar district of Rajasthan. J. Progress. Agric 2014;5(2):59-61.
10. Tomar RKS, Sharma P, Yadav LN. Comparison of yield and economics of irrigated chickpea under improved and local management practices. Internat. Chickpea Pigeonpea News Letter 1999;6:22-23.
11. Tomar RKS. Maxmization of productivity for chick pea (*Cicer arietinum* L.) through improved technologies in farmer's field. Indian J. Nat. Prod. & Resour. 2010;1(4):515-7.
12. Mokidue L, Mohanty AK, Sanjay K. Correlating growth, yield and adoption of urd been technologies. Indian J. Extn. Edu 2011;11(2):20-24.
13. Singh D, Patel AK, Baghel MS, Singh SK, Alka, Singh, Singh AK. Impact of front line demonstration on the yield and economics of chickpea (*Cicer arietinum* L) in Sidhi district of Madhya Pradesh. J. Agric. Search 2014;1(1):22-25.
14. Dhakad SS, Gayatri Verma, Mukesh Singh, Kayam Singh, Ambawatia GR. Impact of Front Line Demonstration on the Yield and Economics of Chickpea in Shajapur District of Madhya Pradesh. Journal of Entomology and Zoology Studies 2020;8(4):936-938.