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Enhancing the Productivity of Green gram (*moong*) through Cluster Front Line Demonstration in the Ashoknagar District of Madhya Pradesh

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Abstract

Cluster Front Line Demonstration on Mungbean were conducted under NFSM Scheme in the year 2016-17 by KVK Ashoknagar, in two villages at fifty eight farmer fields. The result and data analysis shows that extension gap wasfound3.38 q/ha over farmers' practices. CFLD results were recorded in demo plot, the average net grain yield was 10.18 q/ha and average farmers grain yield was 6.8 q/ha, while B:C ratio were found 2.95 demonstration plot and 2.33 in farmers practices. Results also reveals that CFLD has given a good impact over the farming community of Ashoknagar as they were motivated by the improved agricultural technologies applied in the demonstration plots and yield with an increase of 49% higher than farmer's practices

Key Words: *Moong, HUM-12, CFLD*

Introduction

Historically India is the largest producer, consumer and importer of pulses[3]. Although it is the world's largest pulses producer, India had been imported 3.04 millionmetric tons (MT) of total pulses out of which 0.62 MT of *moong* commodity during 2013-14 to meet its domestic demand. *Moong*bean or green gram (*Vignaradiata*) which is commonly known as *Moong* is an important pulse crop grown in our country and accounts 6.44 % to the total production of pulses.

However, during the last decade, growth in pulses production has increased significantly. India achieved a record output in pulses production at 19.7 MT in 2013-14 with an all-time high production achieved in chickpea (9.79 MT), *Tur* (3.34 MT) *moong* (1.28 MT) and *Urad* (1.59 MT) (Anonymous, 2014). Even though pulses production increased significantly during the last decade, still the productivity of pulses in India (694 kg/ha) is lower than most of the major pulse producing countries due to the adoption of recommended production technology among farmers is not very encouraging. The reason may be that the most of the technology have not yet reached to the farmer's fields.

The FLD is an important tool for transfer of latest package of practices in totality to farmers. 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 technology[5].

Materials and Methods

The field experiments were conducted at 58 farmers fields (20 ha) of Madi Tomen and Donger villages of Ashoknagar district of Madhya Pradesh

during the year 2016-17 to evaluate the productive performance of improved varieties of Green Gram. Before conducting demonstrations farmers were trained regarding different aspects of cultivation to follow the package and practices for green gram cultivation as suggested by the scientists of Krishi Vigyan Kendra Ashoknagar and need based input materials provided to the farmers. Krishi Vigyan Kendra 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 of medium duration TJM-3 was used for demonstrations. The farmers followed the full package of practices like proper seed rate, seed treatment with Bio-fertilizer, Trichoderma Viridie, fertilizer application on soil test based, weed and water management, IPM practices etc. In case of local check, the traditional practices were followed in existing local variety by the farmers. Seed were sown between 1july to3julyby tractor driven seed cum ferti drill. Seed were treated with Rhizobium culture and Tricoderma virdie @ 5gm per kg of seed.

Table 1 Description of Technological intervention and farmers practices under CFLD on Summer Moong

Particulars	Technological intervention (T1)	Farmers Practices (T2)	Gap
Variety	TJM-3	Local & old	Full gap
Seed Rate	20 kg/ha	30-40 kg/ha	Partial Gap
Integrated Nutrient Management	N:P:K (20:60:20 Kg/ha + Rhizobium @ 5g/kg seed + PSB @ 5g/kg of seed	Imbalance use of fertilizer	Partial Gap
Integrated Pest Management	Seed treatment with Thiram + Carboxin@ 3g/kg seed + one spray of Profenofos @ 1.5 lit/ha at the ETL + One spray of Thiamethoxam25WG@ 250 g/ha at 42-45 DAS	Two or three spray of Insecticide with insufficient amount of water	Partial Gap
Weed Management	One Hand Weeding	No weeding	Full Gap

The yield data were collected from both the villages of CFLD plots of farmers (Recommended practice) and farmers practice plot (local check)and compiled results. Nodulation and root growth were studied through destructive plant sampling at various growth stages. Data pertaining to crop growth, yield attributes and yield were also collected at harvest and analyzed statistically. The B:C ratio was calculated based on the net return and cost of cultivation in each treatment. To calculate the technology index, extension gap, technology gap and harvest index, the following formulae.

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

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

(ii) Increasing Yield (%):-Increasing Yield was estimated from the following relationship**.**

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

(iii) Technology gap = Potential Yield – Demonstration yield

(iv) Extension gap = Demonstration Yield – Farmers yield

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

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, irrigation and hand weeding produced on an average of 49%more yield of green gram as compared to farmer's practices. The result indicates that the CFLD has given a good impact over the farming community of Ashoknagar as they were motivated by the improved agricultural technologies applied in the demonstration plots.

The technology gap is the gap in the demonstration yield over potential yield was found no gap while extension gap was recorded 3.38 qt/ha. Minimize the extension gap it is need 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 0% indicating the performance of this variety in Ashoknagar region was very good.

Table 2 Grain Yield, Harvest index, Technology gap, Extension Gap and Technology index of Demonstrations

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
10	10.18	6.8	49	9.65	7.3	51.34	48.23	0	3.38	No

Table No 3 Gross Expenditure, Gross Return, Net Return and B:C ratio of Green Gram production under CFLDs.

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
10.18	6.8	49	18900	16500	55990	38500	37090	22000	2.95	2.33

The data presents in table no. 3 indicated that adoption of improved technology of moong not only gives the opportunity of higher yield, but also provides higher benefit cost ratio i.e. 2.95ascompared to 2.33 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 green gram[1] and on chickpea[2, 4, 6]. It was also observed from 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 found Rs 55990 and Rs 37090 in CFLD while in farmer's practices these were found Rs 38500 and Rs 22000 respectively.

References

1. Bhan, Chander, Chawala, Seema, Sidhu, B. S. and Bhati, D. S. (2014). Impact of front line demonstration on production technology of *Moong* (*Vignaradiata*) in Sriganganagar district of Rajasthan. *Journal of Progressive Agriculture, 5(2) : 59-61.*
2. Mokidue, L., Mohanty, A. K. and Sanjay, K. (2011). Correlating growth, yield and adoption of urd been technologies. *Indian Journal of Extension Education* 11(2): 20-24.
3. Raj, A.D., Yadav, V. and Rathod, J. H. (2013). Impact of Front Line Demonstrations (FLD) on the Yield of Pulses. *International Journal of Scientific and Research Publications*, 3(9):1-4.
4. Singh D., Patel, A.K., Baghel, M.S., Singh, S.K., Singh, Alka and Singh, A.K. (2014). Impact of front Line Demonstration on the Yield and Economics of Chickpea (Cicer Arietinum L) in Sidhi District of Madhya Pradesh. *Journal of Agricultural Search*, 1(1): 22-25.
5. Singh, J., Dhillon, B.S., Astha and Singh, P. (2012). Front line demonstration–An effective tool for increasing the productivity of summer *Moong* in Amritsar district of Punjab. *An Asian Journal of Soil Science*, 7(2):315-318.
6. Tomar, R. K. S. (2010). Maxmization of productivity for chick pea (Cicerarietinum L.) through improved technologies in farmer's field. Indian Journal of Natural Products and Resources1(4): 515-7.