International Journal of Farm Sciences **6(1)** : 169-173, 2016

Impact of frontline demonstrations (FLDs) on the yield of green gram, *Vigna radiata* L in tribal belt of East Godavari district of Andhra Pradesh

V JYOTHI SWAROOPA, D MOUNICA and U PAVANI

Krishi Vigyan Kendra, Pandirimamidi, East Godavari 533288
Andhra Pradesh, India
Email for correspondence: jyothivadlamudi2@gmail.com

ABSTRACT

The study was carried out during Rabi in five villages of East Godavari district of Andhra Pradesh during 2014-15. All 40 demonstrations on green gram crop were carried out on an area of 8 ha by the active participation of farmers with the objective to demonstrate the improved technologies of green gram production potential. The improved technologies consisted of use of modern variety, seed treatment with *Rhizobium* culture, balanced fertilizer application and integrated pest management. Frontline demonstrations (FLDs) recorded higher yield as compared to farmers' local practice. The improved technology recorded higher yield of 947 kg/ha compared to 732 kg/ha in farmers' local practice. In spite of increase in yield, technological gap, extension gap and technology index existed. The improved technology gave higher gross return, net return with higher benefit/cost ratio than farmers' practices.

Keywords: Green gram; yield; technology gap; extension gap; technology index

INTRODUCTION

India is the largest pulse producing nation and also the largest consumer and importer of pulses. Pulses are a good and chief source of protein for a majority of the population in India. Protein malnutrition is prevalent among men, women and children in India. Pulses contribute 11 per cent of the total intake of proteins in India (Reddy 2010). India accounts for 33 per cent of the world area and 22 per cent of the world production of pulses. Among pulse crops, green gram is one of the important pulse crops and is cultivated in Andhra Pradesh after the harvest of rice. Green gram contains 25 per cent of high digestible proteins and is a soil building crop which fixes atmospheric nitrogen through symbiotic action and can also be used as green manure crop adding 34 kg N/ ha.

Adoption levels for several components of the improved technology of the crop were low emphasizing the need for better dissemination (Kiresur et al 2001). Several biotic, abiotic and socio-economic constraints inhibit exploitation of

the yield potential of green gram and these are needed to be addressed. Crop growth and yield are limited through poor plant nutrition and uncertain water availability during the growth cycle. Inappropriate management may further reduce the fertility of soil (Rabbinge 1995).

Frontline demonstration on green gram using new crop production technology was initiated with the objective of showing the productive potentials of the new production technologies under real farm situation over the locally cultivated varieties.

MATERIAL and METHODS

The present study was carried out at the Krishi Vigyan Kendra, Pandirimamidi, East Godavari during Rabi season in the farmers' fields of 5 villages during 2014-15. All 40 frontline demonstrations in 8 ha area were conducted in different villages. Improved variety of green gram (LGG-460) was taken in the experimentation. Seed treatment was given with *Rhizobium* culture (500 g of *Rhizobium* culture was sufficient for seeds required to be sown in 1 ha ie 2.5 packets of 200 g each/ha). Fertilizers (N:P:K, 20:40:0 kg/ha) were used. Optimum plant population was maintained in the demonstrations.

The sowing was done in Oct-Nov at a spacing of 45 x 10 cm using 20 kg seed/ha. The fertilizers were applied as per improved practices as basal dose. Chemicals were applied as per recommendation as and when required. Hand weeding within lines was done at 35 DAS. The crop was harvested at perfect maturity stage with suitable methods.

Technology gap, extension gap and technology index were calculated as suggested by Samui et al (2000) as given below:

Technology gap= Potential yield – demonstration yield

Extension gap= Demonstration yield – farmers' yield

$$\text{Technology index (\%)} = \frac{\text{Technology gap}}{\text{Potential yield}} \times 100$$

RESULTS and DISCUSSION

Yield

The average yield of green gram (947 kg/ha) was much higher than average yield of farmers' practice (736 kg/ha). The results indicated that the frontline demonstrations gave good impact over the farming community of East Godavari district as they were motivated by the new agricultural technologies applied in the FLD plots (Table 1). This finding is in

Table 1. Productivity, technology gap, extension gap and technology index of green gram under FLDs

Area (ha)	8
# farmers	20
Yield (kg/ha)	
Potential yield	1000
Improved technologies	947
Local farmers' practices	736
Technology gap (kg/ha)	53
Extension gap (kg/ha)	211
Technology index (%)	5.3

corroboration with the findings of Poonia and Pithia (2011).

Technology gap

The technology gap in the demonstration yield over potential yield was 53 kg/ha for green gram (Table 1). The technological gap may be attributed to the dissimilarity in the soil fertility status and weather conditions (Mukherjee 2003).

Extension gap

The highest extension gap of 211 kg/ha was recorded. This emphasized the need to educate the farmers through various means for the adoption of improved agricultural production technologies. More and more use of latest production technologies with high yielding variety will subsequently change this alarming trend. The new technologies will eventually lead to discontinue the old technologies and to adopt new technologies by the farmers (Table 1). This finding is in corroboration with the finding of Hiremath and Nagaraju (2010).

Technology Index

The technology index shows the feasibility of the evolved technology at the farmers' fields, as lower the value of technology index more is the feasibility of the technology (Jeengar et al 2006). The technology index was 7.3 per cent for green gram (Table 1).

Economic return

The input and output prices of commodities prevailed during the demonstrations were taken for calculating gross return, cost of cultivation, net return and benefit/cost ratio (Table 2). The cultivation of green gram under improved technologies gave higher net return of Rs 23632/ha as compared to farmers' practices. The benefit/cost ratio of green

Table 2. Gross return, cost of cultivation, net return and B:C ratio as affected by improved and local technologies

Particulars	Improved technologies	Local farmers' practices
Gross return (Rs/ha)	32862	28520
Cost of cultivation (Rs/ha)	9230	8680
Net return (Rs/ha)	23632	19840
B:C ratio	3.56	3.28

gram under improved technologies was 3.56 as compared to 3.28 under farmers' practices. This may be due to higher yields obtained under improved technologies compared to local check (farmers' practice). This finding is in corroboration with the findings of Mokidue et al (2011).

Reasons for low yield of green gram at farmers' fields

Optimum sowing time was not followed due to non-availability of quality seed. More than 90 per cent of the farmers had been sowing seed as broadcast method due to which the plant population was sometimes more 2-3 times more than the recommended one. Lack of popularization of seed cum fertilizer drill for sowing and use of inadequate and imbalance doses of fertilizers especially the nitrogenous and phosphatic fertilizers by farmers could not result into potential yield. Chemical control was also quite uncommon in this region.

CONCLUSION

In the frontline demonstrations there was an increase of 5.3 per cent in grain yield over the local check. Such increase was recorded with extra expenditure of Rs 550/ha which could be afforded even by a small and marginal farmer. The extension gap was found to be 211 kg/ha.

As found in the results the BCR (3.56) was sufficiently high to motivate the farmers for adoption of the technologies. The concept of FLD may be applied at more farmers' fields for speedy and wider dissemination of the recommended practices to other members of the farming community.

REFERENCES

Hiremath SM and Nagaraju MV 2010. Evaluation of on-farm frontline demonstrations on the yield of chilli. Karnataka Journal of Agricultural Sciences **23(2):** 341-342.

Jeengar KL, Panwar P and Pareek OP 2006. Frontline demonstration on maize in Bhilwara district of Rajasthan. Current Agriculture **30(1-2):** 115-116.

Kiresur VR, Ramanna Rao SV and Hedge DM 2001. Improved technologies in oilseeds production-an assessment of their economic potentials in India. Agricultural Economics Research Review **14:** 95-108.

Mokidue I, Mohanty AK and Sanjay K 2011. Correlating growth, yield and adoption of Urd bean technologies. Indian Journal of Extension Education **11(2):** 20-24.

Mukherjee N 2003. Participatory learning and action. Concept Publishing Company, New Delhi, India, pp 63-65.

Poonia TC and Pithia MS 2011. Impact of frontline demonstrations of chickpea in Gujarat. Legume Research **34(4):** 304-307.

Rabbinge R 1995. Ecoregional approaches, why, what and how. In: Ecoregional approaches for sustainable land use and food production (J Bouma, J Kuybenhoven, J Bouman, C Luyten and HG Zandastra eds). Kluwer Academic Publishers, Dordrecht, the Netherlands.

Reddy AA 2010. Regional disparities in food habits and nutritional intake in Andhra Pradesh, India.

Received: 11.9.2015 ***Accepted: 29.10.2015***