International Journal of Chemical Studies

P-ISSN: 2349–8528
E-ISSN: 2321–4902
IJCS 2018; 6(3): 234-236

Received: 06-03-2018
Accepted: 07-04-2018

Dhadge SM
AICRP on Groundnut,
All India Coordinated Cotton Improvement Project, Mahatma Phule Krishi Vidyapeeth,
Rahuri, Maharashtra, India

SC Wadile
AICRP on Groundnut,
All India Coordinated Cotton Improvement Project, Mahatma Phule Krishi Vidyapeeth,
Rahuri, Maharashtra, India

VL Amolic and BS Gunjal
AICRP on Groundnut,
All India Coordinated Cotton Improvement Project, Mahatma Phule Krishi Vidyapeeth,
Rahuri, Maharashtra, India

Correspondence
Dhadge SM
AICRP on Groundnut,
All India Coordinated Cotton Improvement Project, Mahatma Phule Krishi Vidyapeeth,
Rahuri, Maharashtra, India

Yield gap analysis through front line demonstrations in summer groundnut crop

Dhadge SM, SC Wadile, VL Amolic and BS Gunjal

Abstract
Front Line Demonstration is one of the most powerful tools for transfer of technology. The present study was undertaken to find out the yield gap through FLD's on groundnut crop. AICRP on groundnut, MPKV, Rahuri (Maharashtra) Centre conducted 125 demonstration on summer groundnut since 2007-08 to 2011-12 in different six district of ten adopted villages. Prevailing farmers practices were treated as control for comparison with recommended practices. The average five year data observed that an average yield of demonstrated plot was obtained 22.48 q/ha over control (17.52 q/ha) with an additional yield of 4.96 q/ha and the increase average groundnut productivity by 28.31 percent. The average technology gap and index were found to be 7.52 and 25.06 percent.

Keywords: Front line demonstration, transfer of technology, recommended practices, yield gap

Introduction
Oil seeds occupy an important position in the Indian economy as they account for 10.10% of the gross cropped area and contribute more than 5% to the gross national product. Groundnut is the king of oilseeds grown in India. It accounts for 34% of the world area under cultivation and contributes 26.8% of the total groundnut production. Its share in the total oilseeds production of 20.87 Mt was 25.44% in 1999-2000. Its yield has been fluctuating in the country due to weather aberration and area under irrigation is limited to less than 20% (Singh and Chandra, 2004) [3]. The major states that grow the crop are Gujarat (26.64%), Andhra Pradesh (26.06%), Karnataka (16.16%), Tamil Nadu (12.08%). Maharashtra (7.57%), Rajasthan (3.93%), Madhya Pradesh (3.78%), Uttar Pradesh (1.5%), These States together cover more than 98.5% area. Maharashtra occupied an area of 3.24 lakh ha with annual production of 3.55 lakh metric tones with productivity of 1096 kg/ha during *kharif* season of the year 2003-04. During summer season, it occupied an area of 0.55 lakh ha with production of 0.82 lakh metric tones and the productivity was 1492 kg/ha (Anonymous, 2004) [1].
The agricultural technology is not generally accepted by the farmers completely in all respects. As such there always appears to be a gap between the recommended technology by the scientist and its modified form at the farmers level. The technological gap is thus the major problem in the efforts of increasing agricultural production in the country. A need of the day is to reduce the technological gap between the its acceptance by the farmer on their field. In view of the above factors, front line demonstrations were undertaken in a systematic manner on farmers field to show the worth of a new variety and convince the farmers to adopt improved cultivation practices of groundnut for enhancing productivity of groundnut. Keeping in view the present investigation attempts to study the yield gap between front line demonstration trials and farmers yield, extent to technology adoption and benefit cost ratio.

Materials and Methods
One hundred twenty five, front line demonstration (FLD's) were conducted during 2007-08 to 2011-12 in Ahmednagar, Jalgoan and Sagali district of Maharashtra State on the farmers field. The objective was to transfer the technology to increase the productivity of groundnut through use of improved groundnut variety. All the demonstrations were conducted on medium black soil on 0.40 ha. The recommended improved groundnut variety Phule unnatti sown in row 30 cm apart at the seed rate of 120 to 125 kg/ha. The inputs like improved variety, recommended dose of fertilizers, bio fertilizers and insecticide/ pesticide, weedicide kits were supplied to the farmers.

Farmers were advised to use proper seed rate. The sowing method keeping 30 x 10 cm spacing was demonstrated on their fields. A basal application of 25 kg N + 50 kg p2O5/ha in the form of urea and single super phosphate and DAP as per demonstration were given. The seed was treated before sowing with Trico derma viride @ 5 g/kg seed and Rhizobium @25 g/kg seed. Plant protection measures were undertaken as per necessity. Finally yield data as for demonstrations and farmers practices were collected on the equal area.

To estimate the technology gap, extension gap and technology index following formulae used by Samui *et al*. (2000) have been used.

Technology gap = Pi (Potential yield) – Di (Demonstration yield)

Extension gap = Di (Demonstration yield) – Fi (Farmers yield)

Technology index = (Pi – Di / Pi) x 100

Where as Pi= Potential yield & Di= demonstration yield.

Table 1: Comparison between demonstration packging and existing practices under groundnut crop.

S. No	Particulars	Groundnut	
		Demonstration	Farmers practice
1	Farming situation	Irrigated	Irrigated
2	Variety	Phule Unnati	TAG-24
3	Time of sowing	15 January to 15 February	February to March
4	Method of sowing	Dibbling/ line sowing	Drilling
5	Seed treatment	Tricoderma @ 5 g/kg of seed	Without seed treatment
6	Biofertilizer treatment	Rhizobium & PSB each @ 25 g/kg seed	No biofertizer treatment
7	Seed rate	120 to 125 kg/ha	100 kg/ha
8	Fertilizer dose	FYM 10 ton/ha & 25 : 50 : 00 NPK kg/ha	No FYM & 18 : 46 : 00 NPK kg/ha
9	Inter culturing operation	2 to 3 hoeing 10 to 12 days interval and 2 weeding	No hoeing and 1 to 2 weeding
10	Irrigation	As per soil type 8 - 10 days interval gave 10 to 12 irrigation. Critical growth stages At flowering, peg formation and pod development	As per need base

Result and Discussion

Performance of FLD'S

During 2007-08 to 2011-12, front line demonstration were conducted in farmer's field revealed that there was 24.39 to 30.10% increased in yield over local check. i.e farmers own practiced in package of practices. The average yield in demonstration (Table-1) varied from 20.40 to 24.20 q/ha during all five years. Highest yield (24.20 q/ha) in demonstration was recorded during 2007-08 followed by (23.30 q/ha) during 2009-10. The lowest yield (20.40 q/ha) was recorded during 2011-12. In local check maximum yield (18.60 q/ha) was recorded during 2007-08, while the minimum yield (16.40 q/ha) during 2010-11. However, the potential yield of variety TAG-24 is 30 q/ha. In general, in all the five years, yield of demonstration plots was higher than local check which was due to adoption of recommended practices in FLD trials. The B:C ratio was recorded to be higher under demonstration than the local check during all the years. Such type of finding also reported by Suryawanshi and Mahindra Prakash (1993) [4].

Table 1: Productivity, technology gap, extension gap and technology index in groundnut under front line demonstration

S. No	Year	Area (ha)	No of farmers	Dry pod yield (q/ha)			% increase over local	Technology gap (q/ha)	Extension gap (q/ha)	Technology index (%)	B:C Ratio	
				Potential	FLD	Local					FLD	Local
1	2007-08	10	25	30	24.20	18.60	30.10	5.80	5.60	19.33	2.42	1.86
2	2008-09	10	25	30	22.70	17.60	28.97	7.30	5.10	24.33	2.27	1.76
3	2009-10	10	25	30	23.30	18.00	29.44	6.70	5.30	22.33	2.33	1.80
4	2010-11	10	25	30	20.40	16.40	24.39	9.60	4.00	32.00	2.04	1.64
5	2011-12	10	25	30	21.80	17.20	26.74	8.20	4.60	27.33	2.18	1.72
	Average				22.48	17.52	28.31	7.52	4.96	25.06	2.24	1.75

Technological gap: The technological gap is the difference between potential yield and yield of demonstration plot. The technological gap was mainly due to variation in soil fertility, non-congenial weather and local specific management problems. Technological gap yield were 5.80, 7.30, 6.70, 9.60 and 8.20 q/ha during the year 2007-08 to 2011-12 respectively. The average technology gap in all the five year was (7.55 q/ha). Technological gap remain higher than extension gap during all the five years, which indicate that there is scope to further exploit the potential yield of the crop.

Extension Gap: The extension gap varied from (4.00 to 5.60 q/ha) indicating the need to educate the farmers in adoption of improved technology.

Technology Index: The adoption of technology in FLD was studied through technology index and recommended package of practices being followed by the farmers. Technology index shows the feasibility of the evolved technology in farmers field. The lower the value of technology index, higher is the feasibility of technology. Technology index varied from 24.33 to 32.00% during all the years. This indicated the wide gap existed between technology evolved and technology adaptation at farmers field. Similar finding were also reported by Kadian *et al*. (1997) [2] and Thakral and Bhatnagar (2002) [5].

References

1. Anonymous. Margdarshika, Directorate of agriculture, Gujarat State, Gandhinagar, India, 2004, 1.
2. Kadian KS, Sharma, Ravinder, Sharma AK. Evaluation of frontline demonstration trial on oilseeds in Kangra Valley of Himachal Pradesh. Annals of Agricultural Research. 1997; 18(1):40-436.

3. Singh G, Chandra H. Production and economic factores growth in cultivation of groundnut crop in India. Journal of oilseeds Research. 2004; 21(10):121-124.
4. Suryawanshi SD, Mahindra Prakash. Impact of viable technology for promoting oilseeds in Maharashtra. Indian Journal of agricultural Economics. 1993; 28:420.
5. Thakral SK, Bhatnagar P. Evaluation of front line demonstration on chick pea in North Western Region of Haryana. Agricultural Science Digest. 2002; 22(3):217-218.
6. Vaghosia PM, Savalia RL, Kelaiya GR. Evaluation of frontline demonstration on groundnut, *Arachis hypogaea* L. in Saurashtra Region of Gujarat J Oilseeds Res. 2005; 22(1):238-239.