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A Csse Study

Impact of front line demonstrations on soybean in tribal belt of Gujarat

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SUMMARY : The study was carried out during *Kharif* season of 2012 and 2013 in ten villages of Narmada district. In all 27 demonstrations on soybean crop were carried out in area of 10 ha with the active participation of farmers with the objective to demonstrate the latest technology of soybean production with suitable variety 'JS-335'. The results revealed that FLD recorded higher yield as compared to farmers practice over the years of study. The improved technology recorded average yield of 1666 kg/ha which was 17.8 per cent higher than that obtained with farmers practice of 1415 kg/ha. In spite of increase in yield of soybean, technological gap, extension gap and technology index existed which was 134, 251 kg/ha and 7.4 per cent, respectively. The improved technology gave higher gross return of 51614 Rs./ha, net return of 39386 Rs./ha with benefit cost ratio 4.2 as compared to local check (43846 Rs./ha, 31618 Rs./ha and benefit cost ratio 3.6, respectively).

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KEY WORDS:
Front line demonstrations, Soybean, Tribal belt

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BACKGROUND AND OBJECTIVES

Soybean is the major oilseed crop of Gujarat that boosted the economy of the state. It is legume but widely grown for oil purpose. It has great potential as a *Kharif* oilseed and has emerged as an important commercial oilseed. Besides being a rich source of protein, they are also important for sustainable agriculture enriching the soil through biological nitrogen fixation. These crops fit well in the various cropping systems without disturbing the main cereal crops. Hence, it is need of the day that we concentrate in developing high yield varieties with matching production technologies and in development of strategies or transfer of appropriate technologies. During 2010-11 the production of soybean was 0.68 million tones on area of 0.84 mha with productivity level of 810 kg/ha in the Gujarat state as compared to country's production of 12.74 million tones on the area of 9.60 mha with productivity level of 1328 kg/ha (DES, 2012). Even though, a wide gap existed in the potential yield and farmers yield on soybean crop tribal belt of Gujarat. In view of this, the scientist of Krishi Vigyan Kendra, Dediapada conducted the front line demonstrations (FLD) on soybean crop to know the yield gaps between FLD's and farmer's field, extent of technology adoption. The area under soybean was very limited in tribal area of Gujarat due to non availability of seeds of improved variety, poor management and biotic and abiotic stress. The main aims of organizing these FLDs in farmer's field to bridge wide gap between demonstration field yield and farmer field yield and popularizing the cultivation of soybean in large area of Narmada district of Gujarat.

Soils of the region are medium black clay with medium to low fertility with pH ranging from 7.0 -7.5. Materials for the present study comprised of high yielding variety "JS-335" of soybean. Locally cultivated variety was used as local check. In the present study, the data on output of soybean cultivation were collected from FLDs plots, the

data on local practices commonly adopted by the farmers of this region were also collected. In demonstration plots, quality seed was provided, whereas traditional variety was maintained in case of local checks. The demonstrations on farmers fields were facilitated by KVK scientists in performing field operations like sowing, spraying, weeding, harvesting etc., during the course of training and visits. For the study, technology gap, extension gap and technology index were calculated as suggested by Samui *et al.* (2000).

Results of 27 front line demonstrations conducted during 2012 and 2013 in 10 ha area on farmers fields of 10 villages of Narmada district indicated that the cultivation practices comprised under FLD *viz.*, use of improved varieties produced on an average 17.8 per cent more yield of soybean compared to local check (1415 kg/ha).The results indicated that the front line demonstrations have given a good impact over the farming community of Narmada district as they were motivated by the new agricultural technologies applied in the FLD plots. Data further showed that the yield of soybean in the following years increased successively indicating clearly the positive impact of FLD over existing practices of soybean cultivation (Table 1). The technology gap observed may be attributed to the dissimilarity in the soil fertility status and weather conditions. Hence, variety wise location specific recommendation appears to be necessary to minimize the technology gap for yield level in different situations (Mukharjee, 2003). The highest extension gap ranged from 247 kg/ha to 255 kg/ha during the period of study emphasizing the need to educate the farmers through various means for the adoption of improved agricultural production technologies to reverse this trend of wide extension gap. More and more use of latest production technologies with high yielding variety will subsequently change this alarming trend of galloping extension gap. The new technologies will eventually lead to the farmers to discontinue the old varieties and to adopt new variety. This finding is in corroboration with the findings of Hiremath and Nagaraju (2010). The technology index showed the feasibility of the evolved technology at the farmer's fields. The lower the value of technology index more is the feasibility of the technology. As such, reduction of technology index from 6.1 (2012) to 8.8 per cent (2013) exhibited the feasibility of technology demonstrated (Table 1). These results are in conformity with the findings of Jeengar *et al.* (2006). The comparative profitability of soybean cultivation with adoption of improved technology and farmers practices has been presented in Table 2. With the adoption of improved technology under FLDs recorded higher gross returns (Rs.51614/ha), net returns (Rs.39386/ha) and B: C ratio (4.2) compared to farmers practice. These results are in conformity with the findings of Raj *et al.* (2013).

Hence, by conducting front line demonstrations of proven technologies, yield potential of soybean can be

Table 1: Productivity, technology gap, extension gap and technology index of soybean under FLDs

Year	Area (ha)	No. of farmers	Yield (kg/ha)			% increase over control	Technology gap (kg/ha)	Extension gap (kg/ha)	Technology index (%)
			Potential	Demonstration	Control				
2012	5.0	11	1800	1691	1436	17.8	109	255	6.1
2013	5.0	16	1800	1641	1394	17.8	159	247	8.8
Mean			1800	1666	1415	17.8	134	251	7.4

Table 2 : Gross realization (Rs./ha), cost of cultivation (Rs./ha), net return (Rs./ha) and B : C ratio as affected by improved and local practices

Year	Gross realization Rs./ha		Cost of cultivation Rs./ha		Net return Rs./ha		B: C ratio	
	Improved technologies	Local check	Improved technologies	Local check	Improved technologies	Local check	Improved technologies	Local check
2012	50727	43091	11955	11955	38772	31136	4.2	3.6
2013	52500	44600	12500	12500	40000	32100	4.2	3.6
Mean	51614	43846	12228	12228	39386	31618	4.2	3.6

increased to great extent. This will subsequently increase the income as well as the livelihood of the farming community. Similar work related to the present work was also done by Kumar *et al.* (2010); Dhaka *et al*. (2010); Mishra *et al.* (2009); Tiwari *et al.* (2003) and Haque (2000).

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