Impact of New Technologies on Soybean at Farmers' Field

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ABSTRACT

A total 75 front line demonstration of soybean organized on the farmer's fields of Sehore district under Vindhyan plateau agro climatic zone of Madhya Pradesh during rainy season of 1999-2000 to 2003-04. The results of these demonstrations revealed that the varieties JS-335, JS-93-05, JS-90-41 and NRC-37 yielded 84.35, 159.06, 133.95 and 42.10 per cent higher than local variety sown under farmer's practices. The highest mean yield of 22.02 q ha-1 under recommended technologies, productivity increase of 49.86 to 72.20 per cent in seed yield over farmers practices, while additional income of Rs.6725 to 11201 ha-1 with 1:2.40 to 1:3.68 incremental benefit: cost ratio.

Key words: *Soybean; Varieties; Demonstration*

Soybean, the number one oilseed crop in the world has recently occupied an important place in the edible oil and agricultural economy of the country. Its inclusion in the cropping system of the country in general and in the states of M.P., Maharashtra and Rajasthan particular has resxulted in improvement of socio-economic status of farmers and provided employment in villages as well as in adjoining cities where soya based industries is located. Adoption of soybean farming in M.P. was a panacea of sorts. It filled in a gap in Kharif season. Being more remunerative than other crops, it raised the income levels of the farmers as also living standard. Under front line demonstration important techniques were demonstrated at farmers field for showing better result over to farmers practices.

METHODOLOGY:

The study was conducted in Sehore district of Madhya Pradesh. Total 75 adopted farmers were selected who had been earlier selected and had actually undertaken the demonstration on their fields and data were collected with the help of personal contact and observation. Yield data was also recorded at the time of separate threshing. The yield of each demonstration was recorded in a systematic manner and the yield of farmers' practices was also recorded at the same time. The collected data were calculated and analysed to draw inferences.

RESULTS AND DISCUSSION

Total 75 front line demonstrations were conducted at farmers' field in their farming situation during 1999-2000 to 2003-04. The highest yield of 2500 Kg./ha was obtained of the variety JS 93-05 during the 2002-03 with the additional amount of Rs. 2999 over farmers practices which yielded 750 kg/ha. The average yield fluctuated and ranged from 1341 to 1956 kg./ha. During the year 1999-2000 to 2003-04. It is clear in table-1 .

Table 2 revealed that variety JS-93-05 yield 159.06 % increase over to farmers practice (local check), variety JS 90-41 yield 133.95 increase over to farmers practices (local check), while yield of JS 335 and NRC-37 84.35 and 42.10 % increase over to farmers practice. Tiwari (2001) Similarly the results also showed that demonstration plot yield was higher 77.61, 109 and 86.77 % of Soybean, Niger and Linseed respectively as compared to local practices. Tiwari et al. (2003) reported that there was 102.5 % increase in soybean demonstration yield over local check during the year 2000. Variety JS 93-05 having more yields potential under multifarming conditions of the farmers in the region and has proved to be most popular amongst them and became popular amongst the farmers.

Table 3 showed that the total cost of demonstrations was Rs. 6236 to 6656 per hectare while the cost of farmers practices (FP) Rs.3320 to 4292 per hectare. The table 3 also revealed that the net return from demonstration was Rs. 9477 to 16890, while net return

Table 1 Yield of soybean as affected by improved and farmers practice on farmer's fields N=75

Year	No. of demons.	Yield q ha^{-1}				% increase in yield
		Highest	Lowest	Average	FP	in yield over FP
1999-00	15	19.75	7.5	13.62	8.00	72.20
2000-01	15	20.00	8.0	13.48	8.15	65.00
2001-02	15	20.88	10.20	16.68	11.13	49.86
2002-03	15	25.00	7.50	13.41	6.55	51.15
2003-04	15	24.50	13.47	19.56	10.01	50.50
Mean	75	22.02	9.33	15.35	8.768	57.74

Table 2 Performance of improved soybean varieties against farmers practice on farmers' fields. N=75

Variety	Yield q ha^{1}		Yield of FP	% increase in yield
	Highest	Average	q ha-1	over FP
JS-335	24.00	17.20	9.33	84.35
JS 93-05	25.00	25.00	9.65	159.06
JS 90-41	20.00	15.09	6.45	133.95
NRC-37	20.00	16.87	6.33	42.10

Table 3. Cost of cultivation, net return and B.C. ratio under improved and farmers practice

Year	Cost of demons. Rs.ha^{1}		Net Return Rs.ha^{1}		Additional cost of cultivation (Rs.ha^{1})	Additional net return Rs.ha^{1}	Incremental benefit :cost ratio
	Demo.	FP	Demo.	FP			
1999-00	6656	4292	9675	2908	2364.33	6767.67	2.86
2000-01	6236	4120	9940	3215	2116	6725	3.17
2001-02	6287	4202	13489	5815	2085	7674	3.68
2002-03	6615	3616	9477	2279	2999	7198	2.40
2003-04	6582	3320	16890	5689	3262	11201	3.43

from farmers practice was Rs. 2279 to 5815 hectare. It means the net return from demonstration was higher than farmer's practices. The additional cost Rs. 2085 to 3262 gave additional net return, it was ranged 6725 to 11201 per hectare. The incremental benefit: cost ratio was also calculated; it was ranged 1:2.40 to 1:3.43.

Thus, it was clearly showed that the demonstration of soybean with full package was better to farmer's practices.

CONCLUSION

The front line demonstration (FLDs) plays a very important role to disseminate recommended technologies because it shows the potential of technologies resulting in an increase in yield at farmers level. Under demonstrations some specific technologies like seed treatment, spacing, improved varieties, balance use of fertilizer, intercultural and plant protection measures were undertaken in a proper way. These technologies were found to be the main reason for increase in the yield and thus it can be said that FLDs were the most successful tools for transfer of technology.

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