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RESEARCH ARTICLE :

Impact of frontline demonstration of SRI technology of paddy cultivation in Navsari district of Gujarat

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SUMMARY : The front line demonstration on SRI technology of paddy cultivation was conducted for two year (2012-13 and 2013-14) on farmers field in two talukas of Navsari district in *Kharif* season. It was observed that average yield performance of SRI technology of 10 and 36 demonstrations in area of 2.5 and 8.6 hectares of 8064 and 8168 kg/ha during the year 2012-13 and 2013-14, respectively. The percentage increase in demonstration yield over local cultivation practices was 58.6 and 70.6 per cent during the year 2012-13 and 2013-14, respectively. The farmers have incurred average higher gross return of Rs. 101476/ha and benefit cost ration of 3.06 through these demonstrations over local paddy cultivation practices, which was recorded Rs.. 61607/ha and 2.21, respectively. The average additional gain of Rs. 39869/ha was obtained by farmers through these demonstration. Results of the demonstration had shown that the SRI technology of paddy cultivation obtained higher productivity of paddy.

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KEY WORDS :
SRI, Demonstration, Impact, Paddy

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BACKGROUND AND OBJECTIVES

Rice is the staple food crop of India and occupies highest area among all the crops grown in the country (Shobha Rani *et al.*, 2010). Currently, India produces rice that is sufficient not only to meet the domestic demands, but also is the largest exporter during 2012 (Kumar *et al.*, 2013). Increased and sustained production of rice is fundamental to food security in India. The production advance in rice enables self-sufficiency despite increase in population. The total production during 2012-13 was 104.40 million tonnes (Agriculture statistics at a glance, 2012) which is to be raised considerably to meet the needs of increasing population. There is almost no scope for increasing rice production through an increase in rice area resulting in productivity of rice becoming great concern.

Water is going to be most critical input in the future for agriculture in general and rice in particular. The share of water for agriculture is likely to drastically go down from 90 per cent to less than 60 per cent. Of all the crops, rice uses more than 70 per cent of all irrigation water in India. Also, there is a notion that higher yields in rice come with high investments on seed, irrigation, high doses of fertilizers and more use of pesticides. This practice not only results in higher cost of cultivation but also may not give the desired results in the longer run in a sustainable way.

Contrary to this popular view, system of rice intensification (SRI) is an alternative method of rice cultivation to economize the use of water and other critical inputs without affecting yield. SRI

is gaining importance in many countries including India. The variable costs were higher in conventional method in comparison with the SRI method because of huge quantity of seeds, fertilizers, plant protection chemicals and animal labour and irrigation charges incurred in conventional method. SRI also emphasizes on the need to shift from chemical fertilizers to organic manures. In overall, SRI method of cultivation can considerably help in attaining the targets with the limited availability of natural resources and there is an urgent need to promote cultivation methods such as system of rice intensification (SRI) in rice to economize the use of water and other critical inputs without affecting yield. With above mention problem, Krishi Vigyan Kendra, Navsari planned to demonstrate the SRI technology on farmers field of Navsari Districts.

RESOURCES AND METHODS

Krishi Vigyan Kendra, Navsari conducted the front line demonstration on SRI technology during the year of 2012-13 and 2013-14 in *Kharif* season. Totally 10 and 36 demonstration in a area of 2.5 and 8.6 hectare area were conducted on SRI technology on farmers field of Vansda and Chikhali taluka of Navsari districts, respectively. The demonstration conducted in irrigated condition and having good drainage facility. The necessary step for selection of site and farmers, layout of demonstration were followed as suggested by Choudhary (1999). Before conducting the FLDs, a list of farmer of different villages was prepared form survey and farmer's meeting and specific skill training was imparted in the form of practising the farmer's training at farmer's field or at Krishi Vigyan Kendra campus regarding the different aspect of SRI cultivation and plant protection measures. The traditional practices followed by farmers were maintained in case of local checks. The data output were collected from both FLD plots as well as check plots and finally the benefit cost ratio were work out.

OBSERVATIONS AND ANALYSIS

The data of presented in Table 1 revealed that yield of paddy was found higher in SRI technology as compared to farmer practices (control). The maximum yield recorded in SRI demonstrated plots was 10580 and 10870 kg/ha during

Table 1 : Yield performances of frontline demonstration of SRI technology

Sr. No.	Year	Name of taluka	Name of variety	No. of farmers
1.	2012-13	Vansda Chikhali	NAUR-1 US-312 Pro-6444	10
2.	2013-14	Vansda Chikhali	NAUR-1 US-312 Pro-6444	36

Table 1 contd....

Contd... Table 1

Area (ha)	Av. yield (kg/ha)			Increase the yield (%)
	Demonstration		Control	
	Max	Avg.	Avg.	
2.5	10580	8064	5083	58.6
8.6	10870	8168	4786	70.6

Table 2 : Economics of front line demonstration of SRI technology

Sr. No.	Year	Av. cost of cultivation (Rs./ha)		Av. gross return (Rs./ha)	
		Demo.	Control	Demo.	Control
1.	2012-13	33250	28230	96768	60996
2.	2013-14	33190	27660	106184	62218
	Average	33220	27945	101476	61607

Table 2 contd...

Contd.... Table 2

Av. net return (Rs./ha)		B:C ratio		Additional gain (Rs./ha)
Demo.	Control	Demo.	Control	
63518	32766	2:91	2:16	35772
72994	34558	3:20	2:25	43966
68256	33662	3:06	2:21	39869

Note : Price of paddy Rs.12/kg in the year 2012-13 and Rs. 13/kg in the year 2013-14

the year 2012-13 and 2013-14, respectively. The average yields of demonstration plots were 8064 and 8168 kg/ha, whereas, control plots recorded 5083 and 4786 kg/ha during the year 2012-13 and 2013-14, respectively. The increase in the yield under SRI technology was found 58.6 and 70.6 per cent over farmer's practices during the year 2012-13 and 2013-14, respectively. The reason for higher yield in FLDs was due to use of recommended practices in SRI and control of pest and disease in paddy by proper application of insecticide at appropriate time and methods, in addition to these utilized the natural resources efficiently by these method. Similar type of results in increase the yield of paddy in SRI methods by Ranjith and Reddy (2014) and increase in the yield *Rabi* onion FLDs was reported by Arora *et al*. (2014).

The average gross return (Rs. 101476/ha), net return (Rs. 68256/ha) and benefit cost ratio (3:06) were recorded higher in the SRI demonstration plots as compared to control. The benefit cost ratio was recorded higher under demonstration plots against check during both the years. The average additional grain of Rs. 39869/ha was incurred in demonstration plots against the farmers' practices (control). The results clearly indicated the positive effect of FLDs over existing paddy cultivation practices towards enhancing the yield and income of paddy cultivating farmers of Navsari district of Gujarat. Tandel *et al.* (2014) found same type of results in demonstration of brinjal crop. Similar work related to the present investigation was also carried out by Acharya and Agarwal (1987), Aaker and Day (1980), Panse and Sukhatme (1978), Agarwal (1986) and Amarchand and Varadharajan (1979).

Conclusion :

From forgoing discussion, it is concluded that the SRI technology of paddy cultivation produced higher yield and incurred maximum income of farmers against the farmers practices thus, leads to productivity of paddy in the Navsari district of Gujarat.

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