IMPACT OF FRONT LINE DEMONSTRATION ON THE YIELD OF POHA RICE (*ORYZA SATIVA*) IN SURAT DISTRICT

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ABSTRACT

The Rice (*Oryza sativa*) covers largest area in total grain production in Surat and Neighboring district (Navsari) of Gujarat. Problem of rice cultivation and their solutions at farming circumstance were studied with the involvement of farmers. In this regard, present study was conducted at different locations in Surat district. These demonstrations focused on increased productivity and replacement of old variety with promising high yielding improved variety GNR-3 and get the feedback from farmers on the performance of rice variety. Study revealed that over the years, GNR-3 variety was superior over traditional farmer practices. The net return (Rs. 34432/ha) and B:C ratio (1:2.53), extension gap (395 kg/ha) and technology index (26.55 %). By conduction of front line demonstration (FLDs) on farmer's field there was significant increase in knowledge level of the farmers and majority of farmer's showed high level of satisfaction about demonstrated technologies.

Key words: Front line demonstration, GNR-3, Technology gap, Extension gap, B:C ratio

No: of Tables : 3 **No:of References : 8**

INTRODUCTION

Rice is the seed of the grass species *Oryza sativa* (Asian rice). As a cereal grain, it is the most widely consumed staple food for a large part of the world's human population, especially in Asia. It is the agricultural commodity with the third-highest worldwide production, after sugarcane and maize.With varied geo-climatic condition, Surat District has varied topographical soil condition is ideally suited for cereal, cash crops, horticultural and other plantation crops. Paddy is one of the most important cereal crop which sown in Olpad, Mahuva, Mandvi, Umarpada and Kamrej Taluka of Surat district.Neighboring district of Surat (Navsari) having more than 100 Poha mills so here market value is very efficient for Paddy growers (especially for poha variety growers). Rice flakes are prepared from paddy and popularly known as "Poha". Poha are made from paddy and hence they are easy to digest. Poha is an important breakfast in semi-urban and rural areas and middle class families of urban India. Spicy as well as sweet preparations are made from them in the category of fast food items. Since the manufacturing process involves roasting of rice, the shelf life of flakes is longer. Therefore it is extensively used all over the country round the year. Apart from households, its spicy preparations are sold in restaurants, roadside dhabas or eateries, canteens etc. There is also a fairly large bulk market. Farsan makers use it to make Chevda and it is also used to increase thickness of gravies. Thus, the manufacturer has to cater both these segments.To minimize the adoption gap and increase the productivity, FLDs can play crucial role. The general objectives of frontline demonstration is "to demonstrate under farmer's field condition, the superior production, potentials and benefits of the latest improved technologies including new production technologies, high yielding crop varieties and recommendations for different region, agro ecological crop growing situation vis-à-vis traditional practices. Keeping all the facts in mind, present study to appraise the yield of Poha rice of the beneficiaries of FLDs and non-beneficiaries.

Table A: Comparison between Frontline demonstrations and Farmer practices

Sr. No.	Particulars	Existing Farmer practices	Improved Practices on Demonstration
1	Farming situation	Irrigated	Irrigated

2	Variety	Use of Local seeds (Jaya, Gurjari)	GNR-3, Improved and high yielding developed by NAU, Navsari
3	Time of Sowing	15th June- 15th July	15th June- 15th July
4	Method of Sowing	Random transplanting	Japanese method
5	Seed rate	40 kg/ha	30 kg/ha
6	Seed treatment	No seed treatment	Seed treatment with captan
7	Fertilizer dose	Imbalanced fertilizer application	N:P:K:@ 100:30:0 kg/ha
8	Weed management	Hand weeding	Use pre emergence weedicide butaclor
9	Plant Protection	Pesticide application without technical guidance	Adoption of IPDM practices

Materials and Methods:

The present study was conducted at Krishi Vigyan Kendra, Navsari Agricultural University, Surat, Gujarat, in the adopted villages (Mandvi & Mahuva Taluka) of Surat district during *Kharif* season for years of 2012, 2013, 2014 and 2015. All 85 front line demonstration in 42.0 ha area in different villages were covered with active participation of farmer. Before conducting FLDs, a list of farmers was prepared from group meeting and specific skill training was imparted to the selected farmers regarding different aspect of cultivation (Venkattakumar *et al*., 2010). The difference between the demonstration package and existing farmers practice are given in Table A.

In demonstration plots, use of quality seeds of improved varieties, Seed rate, Method sowing and timely weeding, need based pesticide, weedicide as well as balanced fertilization were emphasized and comparison has been made with the existing practices (Table A). The necessary steps for selection of site and farmers, lay out of demonstration etc. were followed as suggested by Choudhary (1999). The traditional farmer practices were maintained in case of local checks. The data output were collected from both FLD plots as well as control plots and finally the extension gap, technology gap, technology index along with the benefits cast ratio were work out (Samui *et al.*, 2000) as given below:

Technology gap = Potential yield – Demonstration yield

Extension gap = Demonstration yield – Farmers yield

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

Results and discussion:

The experimental findings obtained from the present study have been distributed in Yield and Economics of rice cultivation as per Table.1 and Table.2.

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

Year	No. of farmers	Area (ha)	Yield (kg/ha)			% increase over control	Technology gap (kg/ha)	Extension gap (kg/ha)	Technology index (%)
			Potential	Demonstration	Control				
2012	10	4	6500	5114	4647	10.05	1386	467	21.32
2013	20	20	6500	4607	4407	4.54	1893	200	29.12
2014	35	10	6500	4487	3948	13.65	2013	539	30.97
2015	20	8	6500	4890	4518	8.23	1610	372	24.77
Mean	-	-	6500	4775	4380	9.12	1726	395	26.55

From the data presented in Table.1, it is concreted that demonstration yield of GNR-3 variety performed better than traditional farmer practices. The GNR-3 recorded maximum and minimum yield in the *kharif* year 2012 and 2014 with 5114 kg/ha and 4487 kg/ha, respectively. The average yield of four years was recorded 4775 kg/ha as compared to local variety 4380 kg/ha. The percent increase in yield was ranging from 4.54 to 13.65 during the study. The results are in conformity with the finding of Tomer *et al*., (2003) and Tiwari and Saxena (2001). The results clearly indicate the positive effects of FLDs over the existing farmer practices toward enhancing the yield of rice.Results of Table.1 revealed that yield of the front line demonstration and potential yield of the crop was compared to estimate the yields which were further categorized into technology and extension gaps. The technology and Extension gaps were ranged between 1386-2013 kg/ha and 200-539 kg/ha with a mean of four years 1726 kg/ha and 395 kg/ha during period of study. Technology and Extension gaps indicated the needs to educate farmers more and more through various extension means to increase awareness and adoption of improved variety especially GNR-3 for narrow down the both gaps. The technology gap increased may be attributing to the dissimilarity soil fertility status and weather conditions (Mitra and Samajdar, 2010).The technology index shows the feasibility of the improved technology at the farmer's fields. The lower

the value of technology index more is the feasibility of the technology. As such, fluctuation in technology index was from 21.32 to 30.97 per cent during period of study (Table 1). These findings corroborate with the finding of Mokidue *et al.,* (2011) and Tomar (2010).

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	
	Demo	Farmer practices	Demo	Farmer practices	Demo	Farmer practices	Demo	Farmer practices
2012	51140	46470	16000	16000	35140	30470	3.20	2.90
2013	57588	55088	25000	25000	32588	30088	2.30	2.20
2014	56985	50140	25000	25000	31985	25140	2.28	2.01
2015	66015	60993	28000	28000	38015	32993	2.36	2.18
Mean	57932	53173	23500	23500	34432	29673	2.53	2.32

The Year wise economics of rice cultivation with adoption of improved technology and farmers practices has been presented in Table 2. The adoption of improved technology under FLDs recorded higher average gross returns (57932 Rs/ha), net returns (34432 Rs/ha) and B: C ratio (1:2.53) compared to farmers practice. Varietal characters of GNR-3 (straw yield and price of rice grain) play additional role for higher gross return. Straw yield and price of rice grain were 25% and Rs. 10/qtl. more over local variety. This fluctuating income trend was obtained due to variable price of rice and improper marketing system. These results are in conformity with the findings of Katare et al. (2011).

The present study observed that cultivation of rice with improved technologies has been found more productive and grain yield might be increase up to 9.12 per cent. Wide technological and extension gaps existed between research recommendation and traditional farmer practices. However, the yield level under FLD was superior over

local rice variety and performance & potentiality of this variety could be further improved by adopting recommended management practices.Hereof, it can be concluded from the study that increased yield was due to adoption of variety GNR-3 and conducting frontline demonstrations of proven technologies yield potentials of crop can be increased to greater extent. This will subsequently increase the yield as well as the livelihood of the farming community.

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