Agriculture Update
Volume 8 | Issue 1 & 2 | February & May, 2013 | 234-236

Research Article

Performance of front line demonstrations on maize in Udaipur district

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ARTICLE CHRONICLE :
Received:
12.02.2013;
Revised :
30.03.2013;
Accepted:
27.04.2013

SUMMARY : The present study was undertaken to assess the performance of front line demonstrations under ISOPOM on maize in Udaipur district. Maize is an important staple food of the tribal belt of Udaipur but, however, its productivity is very low in the district *i.e.*13.96q/ha (2010-11). Front line demonstrations on maize were conducted from seasons *Kharif* 2010 and 2011 at various farmers' fields locations under front line demonstration during this period 140 demonstrations were organized of 0.2-0.4 ha /each using short duration improved varieties *i.e.* Aravalli-1, Pratap-3,Bio 9681 and Bio-9636. Results of the study indicated that improved varieties of maize resulted in high yield (30.75q/ha) which was 69.70 per cent higher over local control. Among improved varieties Bio9636 yielded highest yield of 46.00q/ha which was followed by Bio-9681,Pratap-3 and 1 and Arvalli..Looking to the better performance of Front Line Demonstration, farmers of the region were satisfied with improved varieties and technology

How to cite this article : Rathore, R.S., Jani, P.P. and Jaitawat, G.S. (2013). Performance of front line demonstrations on maize in Udaipur district. *Agric. Update*, **8**(1&2): 234-236.

KEY WORDS:
Front line demonstration

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BACKGROUND AND OBJECTIVES

Maize (*Zea mays* L.) is the most versatile crop with wider adaptability and highest genetic yield potential among the food grain crops. The importance of maize lies in its wide industrial applications besides serving as human food and animal feed. As the demand for maize is growing globally due to its multiple uses for food, feed and industrial sectors there is need to produce more from same or even less resources. Rajasthan has the largest maize cultivation area in the country, followed by states like Uttar Pradesh, Madhya Pradesh, Bihar etc. Within Rajasthan, Udaipur, Bhilwara, Chittorgarh, Banswara, Dungarpur and Rajasmand districts have large areas of maize cultivation. Udaipur lies in south of Rajasthan and is dominated by tribal population.

Maize is an important staple food of the tribal belt of Udaipur. Lack of suitable high yielding variety as well as poor knowledge about production practices are ascribed as main reasons for low productivity of maize in the district..The productivity of maize per unit area could be increased by adopting recommended scientific and sustainable management practices using a suitable high yielding variety. Taking into account the above considerations, front line demonstrations were carried out in a systematic manner on farmers' field to show the worth of a new variety and convincing farmers to adopt improved production management practices of maize for enhancing productivity of maize.

RESOURCES AND METHODS

The study was conducted in Udaipur district in of Rajasthan. Front line demonstrations on maize were conducted from seasons *Kharif* 2010 to 2011 at various farmers' fields locations *i.e.* in villages, Bassi of Salumber tehsil and Devali and Bhopatkheri of Mavli tehsil (Table 1). PRA techniques were applied in these to know the priorities and constraints which were adversely affecting the yield levels. Based on problems identified, front line demonstrations were planned

Table A : Locale under FLD of Udaipur district

Sr. No.	Year (*Kharif*)	Tehsil	Villages	Average rainfall (mm)	Number of farmers Total	Average holding (ha)
1.	2010	Salumber	Bassi	712.4	80	0.75
2.	2011	Mavli	Devali and Bhopatkheri	875.2	60	0.75

and conducted at the farmers' field under integrated scheme of oilseeds, pulses, oil palm and maize (ISOPOM). The purpose of these Front Line Demonstration's was to know the yield gaps between front line demonstration's and farmers field and to find out the reasons for low yield and specific constraints with the small farmers. Under FLD during this period 140 demonstrations were organized of 0.2-0.4 ha /each using short duration improved varieties *i.e.* Aravalli-1,Pratap-3 Bio 9681 and Bio-9636. Well before the conduct of demonstrations, training to the farmers of respective villages was imparted with respect to envisaged technological interventions. All other steps like site and farmer selection, layout of demonstration, farmer's participation etc were followed as suggested by Choudhary (1999). Yield data were collected from control (Farmer's practice) and demonstration plots. The front line demonstration was conducted to study the gaps between the potential yield and demonstration yield, extension gap and the technology index. In the present evaluation study the data on output of maize cultivation were collected from FLD plots, besides the data on local practices commonly adopted by the farmers of this region were also collected. To estimate the technology gap, extension gap and the technology index the following formulae have been used (Samui *et al.,* 2000).

Technology gap = Potential yield – demonstration yield

Extension gap = Demonstration yield- farmers yield

$$\text{Technology index} = \frac{\text{Potential yield – demonstration yield}}{\text{Potential yield}} \times 100$$

OBSERVATIONS AND ANALYSIS

The results of the present study as well as relevant discussion have been summarized under following heads:

Crop situation:

Maize is grown as a rain fed crop in the district and its performance is dependent on the monsoon. During *Kharif* 2010 and 2011 the crop under FLD received higher than average rainfall (639 mm)

Performance of Front Line Demonstration :

A comparison of productivity levels between demonstrated variety and local checks is shown in Table 2. During the period under study it was observed that in front line demonstrations, improved maize cultivars *i.e.* variety, Pratap-3, Aravalli-1.Bio-9681 and Bio-9636 recorded average grain yield (30.75q/ha) and the per cent increase in yield was 69.70 and 120.27 % higher over local and district average yield (13.96q/ha). Satisfactory growth of maize was observed during 2010 to 2011 years, improved varieties along with full package of practices performed well against local varieties.During the year 2010, Bio-9636recorded highest grain yield of 46.0 q/ha and the additional yield was to the tune of 28q/ha was obtained whereas lowest yield was recorded with variety Pratap-3. Among varieties, Bio-9681 was found superior to Pratap-3, Aravalli-1,Bio-9636 and the yield increase was by 64.37, 41.24, 13.09 per cent, respectively. Similar yield enhancement in different crops in front line demonstration has amply been

Table 1 : Mean performance of HYV of maize over different locations of Udaipur district

Sr. No.	Year (*Kharif*)	No. of demonstrations	Area (ha)	Variety	Yield (q/ha)				Per cent increase over local
					Highest	Lowest	Average	Local	
1.	2010	20	4.0	Pratap -3	29.0	18.00	23.30	18.00	29.44
		10	2.0	Aravalli-1	36.00	22.50	27.40	18.00	52.22
		50	10.0	Bio-9636	46.00	25.50	33.60	18.00	86.66
2.	2011	60	24	Bio-9681	42.50	30.5	38.7	18.5	109.18
	Total	140	40				30.75	18.12	69.70

Table 2: Productivity of maize , yield gaps and technology index

Sr. No.	Maize variety	No. of demonstrations	Yield (q/ha)			Gap		Technology index
			Potential	Demonstration	Local	Technology	Extension	
1.	Pratap -3	20	40.40	23.30	18.12	17.10	5.18	42.33
2.	Aravalli-1	10	43.61	27.40	18.12	16.21	9.28	37.17
3.	Bio-9636	50	70.93	33.60	18.12	37.33	15.48	52.62
4.	Bio-9681	60	55.00	38.70	18.12	16.30	20.58	29.63

documented by Mishra *et al.* (2009) and Dhaka *et al.* (2010).

Yield of the front demonstration trials and potential yield of the crop was compared to estimatethe yield gaps which were further categorized into technology index. Highest technology gap (37.33) was observed in the variety Bio-9636 The observed technology gap may be attributed to dissimilarities in soil fertility, salinity and erratic rainfall and other vagaries of weather conditions in the area. The highest extension gap was found in the variety Bio-9681 which was followed by the Bio-9636 Aravalli-1 and Pratap-3, which emphasized the need to educate the farmers through various means for the adoption of improved high yielding varieties and improved agro technologies to reverse this trend of wide extension gap. More and more use of new HYV's by the farmers will subsequently change this alarming trend of galloping extension gap. The lower the value of technology index more is the feasibility. Table 3 revealed that the technology index was lowest in the variety Bio-9681. The finding of the present study is in line with the findings of Sawardekar *et al.*(2003), Hiremath and Nagaraju (2009).Farmers were motivated by results of improved varieties and agro technologies applied in the FLDs trials and it is expected that they would adopt these technologies in the coming years.

Conclusion:

From the present study it can be concluded that improved maize variety and technology in frontline demonstrations gave promising results in terms of yield, gap and technology index. Therefore, it is suggested that more number of front line demonstration are to be organized to demonstrated newly released crop production/protection technologies and its management practices in farmers field.The present study depicts that Udaipur has a great potential for increasing maize productivity and for it suitable high yielding short duration varieties tolerant to dry spell is required.

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