



Short Communication

Role of Front Line Demonstration in Boosting the Mustard Production

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The study was conducted in the Bhilwara district with the objective to assess the potential of the improved production technologies over the traditionally cultivated mustard crop under real farm situation. Mustard is one of the most important oilseeds crop in India, which plays a major role in supplementing the income of small and marginal farmers of Bhilwara district of Rajasthan. One of major constraints of traditional mustard farming is low productivity due to non-adoption of recommended package of practices and improved varieties. To alleviate this constrain, Krishi Vigyan Kendra Bhilwara conducted front line demonstrations at farmer's fields of different operational villages during rabi 2006-07 to 2010-11. Production technologies under FLD comprised of use of improved variety, seed treatment, line sowing, balance use of fertilizers, hoeing and weeding, aphid control and frost management.

The present study was carried out by the Krishi Vigyan Kendra Bhilwara under MPUAT, Udaipur in the farmer's field of 13 operational villages of Bhilwara district. During the period, 215 farmer's field demonstrations were laid out in 85 ha area in different villages. Soils of the area under study were sandy loam to loamy sand and medium of to low fertility status. In case of local check plots, existing practices being used by farmers were followed. The FLDs were conducted to study the gap between the potential yield and demonstration yield, extension gap and technology index. In the present evaluation study, the data on output of mustard cultivation were collected from FLD plots besides the data on local practices commonly adopted by the farmers of Bhilwara district.

In demonstration plots, a few critical inputs in the form of quality seed, balanced fertilizer, seed treatment, agro-chemicals etc. were provided and non-monetary inputs like timely sowing, spraying, weeding were also

performed. However, traditional practices were maintained in case of local checks as detailed in Table 1. The demonstration to farmers were facilitated by KVK scientists in performing field operations like seed treatment, sowing, herbicide application or weeding, spraying of pesticides, harvesting etc. during the course of training and visits. The technologies compared with local practices were as detailed in Table 1. Production and economic data for FLDs and farmers practices were collected and analyzed. The technology gap, extension gap and technology index were calculated using the formulae as given by Samui *et al.* (2000) viz. Technology gap = Potential yield - Demonstration yield; Extension gap = Demonstration yield - Yield under farmers practice; Technology index = [(Potential yield - Demonstration yield) / Potential yield] X 100.

The cultivation practices comprised under front line demonstration gave on an average 51.49% more yield of mustard as compared to farmers practice (Table 2). Similar yield increase in different crops in front line demonstration has been also reported by Mishra *et al.* (2009). The results indicated that the front line demonstration had good impact among the farming community and they were motivated by the new agricultural technologies applied in the FLD plots. The extension gap that ranged from 5.30 q ha⁻¹ to 7.40 q ha⁻¹ during the period of the study emphasized the need to educate the farmers through various means for the adoption of improved agricultural production technologies so as to reverse wide extension gap. Effective use of latest production technologies with high yielding varieties will subsequently change the alarming trend of galloping extension gap and the new technologies will be eventually adopted.

The technology index also reflects the feasibility of the evolved technology at the farmers' fields (Table 2). Lower the value of technology index more is the feasibility of the technology demonstrated. The observed

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Table 1. Intervention points of low yield of mustard and their recommended potential solutions

Interventions	Farmers practice	Improved practice demonstrated (FLD)
Use of seed	Local	Vasundhra (RH 9304)
Seed treatment	No seed treatment	2 g Mencojob kg ⁻¹ seed + 6 ml Chloropyrriphos kg ⁻¹ seed + culture of (Azotobacter and PSB) biofertilizers
Method of sowing	Broadcasting	Line sowing by country plough, row to row 30 cm, plant to plant 10 cm apart
Fertilizer application	40:20:0 (kg N:P:K: ha ⁻¹)	60:30:0 (kg N:P:K: ha ⁻¹), P through single super phosphate as it contains 12% sulphur.
Hoeing and weeding	No use of herbicide	Application of Fluchloralin @ 0.5 kg a.i. ha ⁻¹ before sowing, followed by one hoeing and hand weeding at 30 DAS
Control of aphid	No any control measures	Three spray of dimethoate 30 EC @ 650, 850 and 1000 ml dissolved in 650, 850 and 1000 liters of water ha ⁻¹ , respectively at 15 days interval when aphid reached the economic threshold i.e. 44 aphids cm ⁻¹ central twig
Frost management	No any control measures	Spray of sulphuric acid @ 0.1% solution (1 liter sulphuric acid + 1000 liters of water)

Table 2. Technology gaps, technology index, extension gap and B:C ratio

Particulars	Year - season (rabi)					Pooled
	2006-07	2007-08	2008-09	2009-10	2010-11	
Area (ha)	15.00	20.00	10.00	20.00	20.00	-
No. of FLD	40.00	50.00	25.00	50.00	50.00	-
Yield of FLD (q ha ⁻¹)	16.10	16.90	18.00	19.70	20.80	18.30
Yield of farmers practice (q ha ⁻¹)	10.80	11.20	12.10	12.90	13.40	12.08
% increase over farmers practice	49.07	50.89	48.76	52.71	55.22	51.49
Extension gap (q ha ⁻¹)	5.30	5.70	5.90	6.80	7.40	-
Technology gap (q ha ⁻¹)	5.90	5.10	4.00	2.30	1.20	-
Technology index (%)	26.82	23.18	18.18	10.45	5.45	16.82
B:C ratio of FLD	1.94	2.05	2.33	2.46	2.65	2.29
B:C ratio of farmers practice	1.10	1.17	1.21	1.26	1.31	1.21

reduction of technology index from 26.82% (rabi 2006-07) to 05.42% (rabi 2010-11) clearly demonstrated the feasibility of technologies in this case. Further, the data also clearly brought out the fact that the B:C ratio was also consistently higher in FLD compared to farmer's practices (Table 2).

Thus, through improved technologies yield potential of mustard can be increased by 51.49% and technology index and technology gap can be reduced. This is likely to help in increasing productivity and income as well as the livelihood of the farming community of the district under study.

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