

Research Article

# Impact of FLDs on mustard variety (Bio-902/Laxmi) under extremely Thar arid region of Rajasthan

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**SUMMARY :** Front line demonstration is an appropriate means for demonstration as well as transfer of improved agricultural innovations to the farming community. Front line demonstration on Laxmi/Bio-902 variety of mustard against local check was evaluated at farmer's field during *Rabi* season in the consecutive year *i.e.* 2007-08 to 2011-12. A total of 130 demonstration in 65 ha area were conducted in the villages under jurisdiction area of KVK Jaisalmer. Package of practice as developed for the area was strictly followed. The five year data revealed that an average yield of demonstration plots was obtained 18.08 q/ha over local check (11.44 q/ha) with an additional yield of 6.64 q/ha and the increase average mustard productivity by 24.47 per cent. The average technological gap and technological index were found to be 11.92 and 51.40 per cent, respectively.

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**KEY WORDS :**

Mustard, Demonstration, Grain yield, Extension gap, Technology gap, Economics, Horizontal spread

## BACKGROUND AND OBJECTIVES

India is a second largest rapeseed-mustard growing country in the world. It is grown on 6.79 million ha area with annual production of 7.4 million tones. Which contributed 30.64 per cent of the total production of oil seed in India during 2006-07. Rajasthan is a major mustard producing state of India. Mustard is one of the important oilseed crops in Jaisalmer district of Rajasthan which plays a major role in supplementing the income of small and marginal farmers of the district. Low productivity of local varieties is one of the major constraints in mustard cultivation. Krishi Vigyan Kendra, Jaisalmer decided to conduct front line demonstration on mustard to replace the local varieties. The front line demonstration underlying the basic principle of extension education "learning by doing" and "seeing is believing" are the backbone of transfer of new/improved agricultural technology. Keeping the importance of FLDs, the KVK Jaisalmer has been assigned the responsibility to

lay out the FLDs on mustard with the objective to identify the yield gaps between farmer's practice and front line demonstration and workout the input cost and monetary return under front line demonstration and farmers methods.

## RESOURCES AND METHODS

The present study was conducted at Krishi Vigyan Kendra, Jaisalmer (Rajasthan) during *Rabi* season from 2007-08 to 2011-12 (Five consecutive year) in the villages of operational area of KVK. Every demonstration consisted of both improved and local variety having 0.5 ha area each and totally 130 demonstrations in 65 ha area was conducted. The procedure followed for selecting a list of farmers was group meeting, field survey and based on agro ecological situation and after that 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

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Sr. No.	Particulars	Demonstration	Farmer practice
1.	Farming situation	Irrigated	Irrigated
2.	Variety	Bio-902/Laxmi	
3.	Time of sowing	10-15 October	25-30 October
4.	Method of sowing	Line sowing	Broadcasting
5.	Seed treatment	Bavastin 3g/kg	Without seed treatment
6.	Seed rate	4 kg/ha	7.5 kg/ha
7.	Fertilizer dose	NPKS(60:30:20:20)	NPKS(40:20:00:00)
8.	Plant protection	Need based application of Imidachlopride 17.8 SL+Sulfex to protect the crop from sucking pest and disease	Injudicious use of pesticide
9.	Weed management	pendamethalin@0.3 kg.ai/ha as pre-emergence followed by one hand weeding at 35 DAS	No weeding

practices are given in Table A.

Usual farmer's practice were treated as a control for comparison with recommended package *i.e.* use of quality seeds of improved varieties, line of sowing, seed treatment and timely weeding, necessity of pesticide as well as balanced fertilizer were also emphasized. The data on production cost and monetary returns were collected from front line demonstration plots for working out the economic feasibility of improved variety. Moreover, the data on local practices commonly adopted by the farmers of this area were also collected. The technology gap and technology index were

calculated as given by Samui *et al.* (2000).

## **OBSERVATIONS AND ANALYSIS**

The data of Table 1 reveal that yield of demonstration plots were increased continuously year by year. This was due to combined effect of package of practices and training provided by KVK scientists. The increase in yield during the investigation period of five years was noteworthy *i.e.* 16.58 per cent to 38.0 per cent. The result are in conformity with the findings of Tomar *et al.* (2003) and clearly point out the

**Table 1: Comparison of yield during investigation years**

Years	Variety	No. of farmers	Area	Potential yield q/ha	Demonstration yield q/ha			Local Check	Increase in yield %
					Highest	Lowest	Average		
2007-08	Bio-902	30	15	30	13.5	9.20	9.28	7.96	16.58
2008-09	Laxmi	40	20	30	19.0	11.0	13.75	11.25	22.00
2009-10	Laxmi	20	10	30	18.9	12.6	15.75	11.5	38.0
2010-11	Laxmi	20	10	30	19.1	13.2	16.15	11.9	23.52
2011-12	Laxmi	20	10	30	19.9	13.5	17.85	14.6	22.26

**Table 2: Yield gap of mustard during investigation years**

Years	Technology gap	Extension gap	Technology index
2007-08	16.5	5.54	55.00
2008-09	11.0	7.75	36.67
2009-10	11.1	7.4	37.00
2010-11	10.9	7.2	36.33
2011-12	10.1	5.3	33.67

**Table 3 : The year wise economics of mustard production**

Years	Cost of cultivation (Rs./ha)		Gross return (Rs./ha)		Net return (Rs./ha)		B:C ratio	
	Demonstration	Local check	Demonstration	Local check	Demonstration	Local check	Demonstration	Local check
2007-08	6000	5500	17632	15124	11632	9624	1.93	1.74
2008-09	10500	10,000	28875	22247	18375	12247	2.75	2.62
2009-10	12500	10,500	31700	23000	19200	12500	2.53	2.22
2010-11	13100	12,000	36750	29750	23650	17750	2.80	2.47
2011-12	13600	11,500	41055	33580	27455	22080	3.01	2.92
	11140	9900	31202	24,740	20,062	14840	2.80	2.49

positive effect of FLDS over the existing practices towards enhancing the yield of mustard in Jaisalmer district.

Yield of the front line demonstration trials and potential yield of the crop was compared to estimate the yield gaps which were further categorized into technology and extension gap. The data presented in Table 2 showed the gap in the demonstration yield over potential yield which ranged from 10.1 to 16.5 and reflects the farmer's cooperation in carrying out such demonstrations with encouraging result in subsequent years. The observed technology gap may be attributed to dissimilarity in soil fertility status and weather conditions. Similar finding was recorded by Mitra *et al.* (2010). Further, the higher extension gap was recorded. The extension gap was between 5.3 q/ha to 7.75 q/ha during period of study which emphasized the need to increase awareness among farmers about improved cultivation practices of mustard for the reverse wider extension gap.

The year wise economics of mustard production under front line demonstration were estimated and the results are presented in Table 3. The economic analysis of the data during five year revealed that demonstration plots gave higher gross return (31202 /ha), net return (Rs. 20,062/ ha) and B: C ratio (1:2.80) over local check. These results are in line with the findings of Hiremath *et al.* (2007). Further, by inclusion with additional cost of Rs. 2100 per hectare has yielded maximum additional net returns (Rs. 27455) over local suggesting its higher profitability and economic viability of the demonstration.

The level of adoption and horizontal spread of mustard variety Bio-902/Laxmi was assessed in operational area and nearby villages during 2012-13. As a result of survey, it was found that beneficiaries farmers were continuously using the mustard variety (Bio-902/Laxmi) in every year and a sample of 200 non-beneficiaries farmers were examined from 20 villages nearby operational villages of KVK.

The data of Table 4 depicted that the maximum adoption and horizontal spread (71.5%) occurred in Bhairwa village because knowledge level of beneficiaries farmers was higher as compared to other operational village. 39 per cent adoption of improved variety was in operational village Mohangarh. The beneficiary farmers were advised to sale their seed among farmers. The "farmer to farmer" approach for horizontal

spread of seed resulted in significant spread of seed in near by villages.

**Table 5: Horizontal spread of mustard variety (n=200)**

Name of operational village	Per cent adoption	No. of nearby villages
Lathi	69.0	05
Chandan	47.0	05
Bhairwa	71.5	05
Mohangarh	39.0	05

### Conclusion:

From the above findings it can be concluded that use of scientific method of mustard cultivation can reduce the technology gap to a considerable extent thus, leading to increased productivity of mustard in the district. Moreover, extension agencies in the district need to provide proper technical support to the farmers through different educational and extension method to reduce the extension gap for better oilseed production in the district.

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### REFERENCES

- Garhwal, Omprakash, Arora, Dinesh, Jakhar, Mohan Lal and Chodhary, Mali Ram** (2013). Impact of cumin variety (GC-4) under semi-arid condition of Rajasthan. *Internat. J. Life Sci.*, **2** (2):97-99.
- Mitra, Biplab and Samajdar, T.** (2010). Yield gap analysis of rapeseed-mustard through front line demonstration. *Agric. Extn., Rev.*, pp.16-17.
- Samui, S.K., Maitra, S. Roy, D.K. Mandal, A.K. and Saha, D.** (2000). Evaluation of front line demonstration on groundnut. *J.Indian Soc. Coastal Agric. Res.*, **18**(2): 180-183.
- Tomar, L.S., Sharma, B.P. and Joshi, K.** (2003). Impact of front line demonstration of soyabean in transfer of improved technology, *J. Extn. Edu.*, **22**(1):139.
- Venkattakumar, R., Ramana Rao, S.V., Padmaiah, M. and Madhuri, P.** (2010). Production constraints and information need of growers in Andhra Pradesh, *Agric. Extn. Rev.*:21-24.

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