



# Performance of Frontline Demonstration on Yield Enhancement of Cumin in Barmer District of Rajasthan

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## ABSTRACT

The present study was conducted in Barmer district of Rajasthan. The front line demonstrations on cumin crop conducted by Krishi Vigyan Kendra, Danta, Barmer during the last three years (2013-14 to 2015-16). The results showed 31.90 to 62.19 per cent yield increase in FLDs over farmers practice during 2013-14 to 2015-2016. The extension gap, technology gap and technology index were 2.67 q/ha, 2.50 q/ha and 29.41 per cent, respectively. Therefore, front line demonstration programme was an effective tool for increasing the productivity of cumin and changing knowledge, attitude and skill of farmers. This created greater awareness and motivated the other farmers to adopt improved practices of Cumin.

**Key Words:** Transfer of Technology, Cumin, Technology index, Technology gap, Extension gap.

## INTRODUCTION

Cumin (*Cuminum cyminum* L.) commonly known as *Jeera* is an important seed spice crop grown in western part of India. It is mainly used in flavoring foods and also used in Ayurvedic medicines. The Department of Agriculture, Govt. of India had established a "Technology Mission on Seed spices" in 1991-1992 to achieve self-sufficiency in seed spices production. Under this mission, the ICAR introduced the concept of "Front Line demonstration" during 1990-1991. These demonstrations are conducted under the close supervision of scientists of the NARS, Krishi Vigyan Kendras and State Agricultural Universities and of two to four hectares of land. The FLDs is an important method of transfer of latest package of practices in totality to farmers and main objective of this programme is demonstration of newly released crop production and protection technologies and management practices at the farmer's field under real farming situation at his own field under different agro-climate regions. The present study has been undertaken to study the difference between demonstration package and farmers practices of cumin and to assess effect of FLDs technology on increasing the productivity of cumin.

## MATERIALS AND METHODS

The Front Line Demonstrations (FLD) on 36 ha area under cumin crop were conducted by the Krishi Vigyan Kendra, Danta, Barmer district during last three year (2013-2014 to 2015-2016). The soil of the district is generally sandy to sandy loam in texture which is low organic carbon (0.09 - 0.215 %), available phosphorus (11-14 kg/ha) and medium to high in potash. Each demonstration was of 0.4 ha area and the critical inputs were applied as per the package of practices. The primary data were collected from the farmers with the help of interview schedule and interpreted and presented in terms of percentage and the qualitative data were converted into quantitative form and expressed in terms of per cent increased yield.

Under the FLDs only recommended HYVs, seed rate @ 12 kg/ha, Carbendazim @ 2 g/kg and Trichoderma @ 4g/kg seed with fungicide, insecticide for seed treatment given to the farmers for demonstration (Table 1). The sowing was done by seed drill under FLDs and under farmers practice line/broadcasting method was used. Farmer's practice generally include locally self produced seed at high seed rate without treatment. The differences in the packages were in line with the findings of

**Table 1. Difference between demonstration package and farmers practices of Cumin.**

Sr. No.	Particular	Demonstration package	Farmers' practices
1	Variety	GC 04	Local
2	Seed rate	12 kg/ha	15-20 kg/ha
3	Seed treatment	Carbendazim@2gm/kg seed +Trichoderma@4g/kg seed	Not applied
4	Sowing method	Line/Broadcasting	Broadcasting
	Sowing time	15-30 Nov.	15 Oct-10 Dec
5	Fertilizers' doses	Recommended dose {30:20:10 (N:P:K)}	without recommendation {50:50:00 (N:P:K)}
6	Plant protection measures	Need based spray of insecticides and fungicides (Carbendazim 50 WP, Dimethoate, Zineb 68%)	Higher dose of insecticides and pesticides (Use Imidachoropid in 20 ml in 15 lit water)

Singh and Varshney (2010) and Khan and Chauhan (2005).

Different parameters were calculated to find out technology gaps as follows:

Extension gap = Demonstration yield - Local check yield

Technology gap = potential yield - Demonstration yield

Technology index = Potential yield - Demonstration yield x 100/Potential Yield

## RESULTS AND DISCUSSION

The results revealed that the average yield recorded in the FLDs was 6.52 and 4.05 q/ha during 2014 - 2015 and in FLDs field and farmer's field

lowest yield was 5.83 and 4.42 q/ha during 2013-2014, respectively. The result showed (Table 2) 31.9 to 62.19 per cent yield increase in FLDs over farmers' practice during 2013-14 to 2015-2016. These effects in the demonstration packages were in line with the findings of Veerasamy *et al* (2003).

An extension gap between demonstrated technology and farmers practice range from 1.7 to 2.6 q/ha during the study (Table 2). This gap might be attributed to adoption of improved technology in demonstrations which resulted in higher grain yield than the traditional farmer's practices. Wide technology gap were observed and this was lowest (1.41 q/ha) during 2013-14 and highest (2.50 q/ha) during 2014-15. The difference in technology gap during different years could be due to more

**Table 2. Production of performance Cumin (GC 04) in FLDs programme.**

Year	Average yield (q/ha)		% increase over farmer practice	Extension gap (q/ha)	Technology gap (q/ha)	Technology index (%)
	Demonstration	Farmer Practice				
2013-14	5.83	4.42	31.90	2.67	1.41	16.59
2014-15	6.52	4.02	62.19	1.98	2.50	29.41
2015-16	6.32	4.62	36.80	1.70	1.70	20.00
Average	6.22	4.35				

Note:-Potential yield = 8.5 q/ha

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**Table 3. Economic Analysis of demonstrated plots and farmers practice.**

Year	Average cost of Cultivation (Rs/ha)		Average Gross return (Rs/ha)		Average Net Returns (Rs./ha)		B:C ratio	
	Demo	Local	Demo	Local	Demo	Local	Demo	Local
2013-14	16200	14460	41000	32000	24800	17540	2.53	2.21
2014-15	21500	18700	97800	75300	76300	56600	4.55	4.02
2015-16	22300	19425	94800	69300	72500	49875	4.25	3.57
Average	20000	17528.33	77866.67	58866.67	57866.67	41338.33	3.77	3.26

feasibility of recommended technologies during different years. Similarly, the technology index for all the demonstrations were in accordance with technology gap. Higher technology for transferring to farmers and insufficient extension services for transfer of technology.

Different variables like seed, fertilizers, bio fertilizers and pesticides were considered as critical inputs for the demonstration as well as farmers practices and on an average an additional investment of Rs. 2396/-ha were made under demonstrations resulting additional returns of Rs 16528/-ha (Table 3). The results confirm the findings of frontline demonstrations on oilseed and pulses crops reported by Chaudhary *et al* (2012).

### CONCLUSION

It was concluded that 31.9 to 62.19 per cent (2013-2014 to 2015-2016) yield increase in FLDs over farmers' practice (traditional) was recorded in cumin cultivation. This created greater awareness

and motivated the other farmers to adopt improved practice of cumin. The beneficiary farmers played an important role as source of pure seeds for wider dissemination of the HYV of cumin for other nearby farmers at present GC04 variety under 50000 ha area covered in District.

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