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Yield gap among KVK-trained and untrained farmers regarding improved fenugreek production technology in Rajasthan

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ABSTRACT

Fenugreek (*Trigonella foenum-graecum* L.) is an important seed spice crop belonging to the family Fabaceae. It is an annual, self-pollinated, herbaceous plant commonly known as methi and is predominantly grown during the rabi season in north-western India. The crop is cultivated for its fresh leaves, tender shoots and seeds and has considerable importance as a food, spice and medicinal crop. Fenugreek has high nutritional and medicinal value, as different parts of the plant are utilized in various forms. The study was conducted in Bikaner and Sikar regions of Rajasthan. Bikaner and Sikar districts, Lunkaransar, Sikar, Laxmangarh and Danta Ramgarh tehsils and 11 villages were selected purposively. A total of 214 respondents comprising 107 KVK-trained and 107 untrained farmers were selected. Data were collected through a pre-tested interview schedule using personal interview method and analysed using standard deviation, Z-test, Spearman's rank correlation and correlation coefficient. The result indicated that the average yield of KVK-trained farmers (17.75 q/ha) was higher than that of untrained farmers (16.54 q/ha). The overall yield gap was 1.21 q/ha (7.31%), increasing from 7.58 per cent in 2021–22 to 10.57 per cent in 2024–25. The difference in yield was significant at the 1 per cent level.

Keywords: Fenugreek, Yield gap, KVK-trained, Untrained, Farmers, Improved, Technology

Introduction

Fenugreek (*Trigonella foenum-graecum* L.), commonly known as methi, is an important seed spice crop of Rajasthan and is cultivated mainly during the rabi season. It is valued for its leaves, seeds and medicinal and nutritional properties. Rajasthan is one of the major fenugreek-producing states of India and contributes substantially to the country's seed spice production. Front Line Demonstrations conducted by Krishi Vigyan Kendras are an effective extension approach for demonstrating the performance and practical utility of improved technologies under farmer's field conditions. FLDs are conducted under the close supervision and technical guidance of agricultural scientists, which ensures the proper application of recommended technologies and provides farmers with timely technical support. Through FLDs, farmers can observe the comparative performance of improved varieties and recommended practices related to seed treatment, sowing methods, nutrient management, irrigation, weed management and plant protection under their own agro-climatic conditions.

Methodology

The present investigation was conducted in Rajasthan state, which consists of 10 Agricultural Regions. Out of these, Bikaner and Sikar regions was selected purposively, because it has the highest area and production of fenugreek as compared to other agricultural regions of Rajasthan. Bikaner and Sikar districts were selected purposively from each selected region on the basis of having the highest area under fenugreek crops in comparison to other districts of Rajasthan. Bikaner and Sikar districts comprise 11 and 10 tehsils, respectively. Lunkaransar tehsil from Bikaner district and Sikar, Laxmangarh and Danta Ramgarh tehsils from Sikar district were purposively selected for the study. The selection of tehsils was based on the records of Front Line Demonstrations (FLDs) conducted by the concerned Krishi Vigyan Kendras (KVKs). The villages were selected purposively on the basis of the records of FLDs conducted by the respective KVKs. According to the records of KVK Lunkaransar, Bikaner, a total of 57 FLDs were conducted at farmer's fields in 2 villages, namely Nakodesar and Pepera of Lunkaransar tehsil. Similarly, the records of KVK Fatehpur, Sikar reported that a total of 50 FLDs were conducted in 9 villages, namely Bagu ka Bas, Khoru, Patoda, Kaswali, Shyampura, Sherpura, Trilokpura, Madhopura and Chainpura from the selected tehsils of Sikar district. A total of 214 respondents, comprising 107 trained and 107 untrained farmers were selected.

Result and Discussion

1. Level of yield obtained by KVK-trained and untrained farmers regarding improved fenugreek production technology

The Table 1 revealed that the average yield of fenugreek obtained by KVK-trained farmers was higher than that of untrained farmers during all the years under study. During 2021–22, the average yield obtained by KVK-trained farmers was 18.84 q/ha as compared to 17.72

q/ha among untrained farmers, with a yield gap of 1.12 q/ha (7.58%). In 2022–23, the corresponding average yields were 16.94 and 15.88 q/ha, respectively, with a yield gap of 1.05 q/ha (8.09%). During 2023–24, KVK-trained farmers obtained an average yield of 17.48 q/ha compared to 16.35 q/ha among untrained farmers, resulting in a yield gap of 1.13 q/ha (8.30%). In 2024–25, the average yield was 17.74 q/ha among KVK-trained farmers and 16.23 q/ha among untrained farmers, with the highest yield gap of 1.51 q/ha (10.57%).

$n = 214$

Table 1. Level of yield obtained by KVK-trained and untrained farmers regarding improved fenugreek production technology

S. No.	Years	KVK-trained farmers ($n_1 = 107$)	Untrained farmers ($n_2 = 107$)	Yield gap (Qt.)	Yield gap %
		Average yield (Qt.)	Average yield (Qt.)		
1	2021-22	18.84	17.72	1.12	07.58
2	2022-23	16.94	15.88	1.05	08.09
3	2023-24	17.48	16.35	1.13	08.30
4	2024-25	17.74	16.23	1.51	10.57
Overall		17.75	16.54	1.21	07.31

% = Per cent

Overall, the average yield obtained by KVK-trained farmers was 17.75 q/ha, whereas untrained farmers obtained 16.54 q/ha, resulting in an overall yield gap of 1.21 q/ha (07.31%). The higher yield among KVK-trained farmers may be attributed to their better knowledge and adoption of recommended fenugreek production practices gained through KVK training, including improved varieties, seed treatment, proper sowing time and spacing, balanced nutrient management, effective weed management and appropriate plant protection measures. In contrast, the comparatively lower yield among untrained farmers may be due to limited knowledge and adoption of recommended production practices. Thus, the findings indicated that KVK training contributed to better yield performance among the trained farmers. Similar results were reported in a study by Badhala *et al.* (2012) [1], Bhoraniya *et al.* (2017) [2], Dashora *et al.* (2020) [3] and Desai *et al.*

(2020) [4]

2. Comparison of yield gap by KVK-trained and untrained farmers in regarding improved fenugreek production technology

Table-2 showed that the average yield of KVK-trained farmers was higher than that of untrained farmers in all four years. During 2021–22, 2022–23, 2023–24 and 2024–25, the calculated 'Z' values were 4.58, 4.94, 5.49 and 5.49, respectively, and all were significant at the 1 per cent level. The overall average yield was 17.75 Qt./ha for KVK-trained farmers and 16.57 Qt./ha for untrained farmers, with an overall 'Z' value of 5.12, significant at the 1 per cent level

$n = 214$

Table 2. Comparison of yield gap by KVK-trained and untrained farmers in regarding improved fenugreek production technology

S. No.	Years	KVK-trained farmers ($n_1 = 107$)		Untrained farmers ($n_2 = 107$)		'Z' Value
		Mean	SD	Mean	SD	
1.	2021-22	18.84	1.32	17.72	2.16	4.58**
2.	2022-23	16.94	0.93	15.88	1.99	4.94**
3.	2023-24	17.48	1.20	16.35	1.76	5.49**
4.	2024-25	17.74	1.96	16.35	1.75	5.49**
Average		17.75	1.35	16.57	1.92	5.12**

**= Significant at 1% level of significance

The higher yield obtained by KVK-trained farmers may be attributed to their greater exposure to improved fenugreek production technology, better knowledge of recommended practices, and higher adoption of scientific crop management practices. KVK training and demonstrations may have helped farmers to understand and properly implement important practices such as the use of improved varieties, seed treatment, recommended seed rate and spacing, timely sowing, balanced fertilizer application, weed management, irrigation management and plant protection measures. Regular interaction with KVK scientists and extension personnel may also have enabled trained farmers to obtain timely technical guidance and solve field-level production problems more effectively.

In contrast, untrained farmers may have had comparatively less exposure to scientific recommendations and extension support, resulting in relatively lower yields. Thus, the findings clearly indicate that KVK

training and extension interventions contributed positively to improving fenugreek productivity and KVK-trained farmers achieved significantly higher yields than untrained farmers during all the years under study.

Similar results were reported earlier by Lal *et al.* (2015) [5], Dashora *et al.* (2020) [3] Mehariya *et al.* (2020) [6] and Kanwat *et al.* (2022) [7]

Conclusion

The average yield of fenugreek obtained by KVK-trained farmers was higher than that of untrained farmers during all four years under study. The yield gap was 1.12 q/ha (7.58%) in 2021–22, 1.05 q/ha (8.09%) in 2022–23, 1.13 q/ha (8.30%) in 2023–24 and 1.51 q/ha (10.57%) in 2024–25. The difference in yield was significant at the 1 per cent level in all four years, with an overall 'Z' value of 5.12, indicating significantly higher yield among KVK-trained farmers.

References

1. Badhala BS, Jat HL. level of yield obtained by beneficiary and non-beneficiary farmers with respect to groundnut production technology. *Rajasthan Journal of Extension Education*. 2012;20:141-143.
2. Bhoraniya MF, Chandawat MS, Bochalya BC. Assessment of frontline demonstration on yield enhancement and economics of cumin (gc-4) in *Surendra* Nagar district of Saurashtra region of Gujarat. *Gujarat Journal Extension Education*. 2017;28(1):14-17.
3. Dashora A, Solanki RL, Urmila, Chhipa BG, Singh PB. Impact of Front Line Demonstration on the Yield and Economics of Fenugreek in Southern Rajasthan. *Int.J.Curr.Microbiol.App.Sci*. 2020;9(6):1397-1402.
4. Desai CK, Singh PB, Patel VK, Rabari PH. Yield gap analysis through frontline demonstration in cumin. *Journal of Pharmacognosy and Phytochemistry*. 2020;9(4):3444-3445.
5. Lal G, Singh B, Singh R, Mehta RS, Sharma YK, Meena RS, Maheria SP. Assessment of variatal performance, technological gap and productivity gain through front line demonstrations in fenugreek. *Legume Research-An International Journal*. 2015;38(5):616-620.
6. Mehariya ML, Ramesh, Singh H. Improved technological intervention- A boon in enhancing fenugreek yield in Western Rajasthan. *International J. Seed Spices*. 2020;10(1):52-55.
7. Kanwat M, Jat SR. Impact through a front-line demonstration on yield and economics of fennel (*Foeniculum vulgare* Mill) in arid Kachhh of Gujarat. *Journal of Agriculture and Ecology*. 2022;14:125-130.

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