

SHORT COMMUNICATION

# Impact of fennel (*Foeniculum vulgare* Mill) variety (RF-125) under semi arid conditions of Nagaur, Rajasthan

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Fennel is an important high value seed spice crop belonging to family apiaceae. In India, the area under fennel is 74149 hectares with the total production of 114277 tonnes with an average productivity of 1541 kg ha<sup>-1</sup> (Anwer *et al.* 2011). It is mainly grown in Gujarat, Rajasthan, Karnataka, UP, Punjab and Haryana. The Gujarat contributes 80% of the total production in the country followed by Rajasthan (10%). In state like Rajasthan, area under fennel is spreading in semi arid regions but the productivity of the crop is low as compared to Gujarat. The yield potential of fennel is low primarily due to less availability of better genotype for cultivation under the prevailing agro-climatic conditions and secondly due to poor management of production sites (Singh *et al.* 2012)

Improved agronomical practices along with good quality seed are the key factors to increase the productivity levels. Keeping these facts in view front line demonstrations were laid out by KVK, Nagaur to evaluate the impact of high yielding variety (RF-125) along with balanced fertilization during Rabi seasons of 2007-2008 to 2010-11.

The demonstrations were carried out at farmers field in village somana, Khiwtana, Nimbri, Chardas and sarasni of Nagaur during four Rabi season from 2007-08 to 2010-11. The soil of demonstration sites were mostly sandy loam in texture with low organic carbon (0.13 to 0.27 percent). The available NPK were 134 to 140, 12 to 14 and 168 to 192 kg ha<sup>-1</sup> respectively. PH of irrigation water was +8.7 with high EC (+4.68 dsm<sup>-1</sup>)

The sowing of fennel variety RF-125 was done in between second week October to last week of October in all the four seasons. The recommended dose of nitrogen and phosphorus (90:60 kg ha<sup>-1</sup>) were applied through urea and SSP. Full dose of phosphorus and 1/3 rd of nitrogen was applied as basal dose and remaining dose of nitrogen was applied in two equal splits at 30 and 60 days after sowing. Seed treatment was done with carbendazim @2 g per Kg seed. The other crop management practices were preferred as per standard recommendation of the region. One block

of farmer's practice (Local variety with +50 kg N ha<sup>-1</sup>) was also kept for comparison. Harvesting of crop was done during 2<sup>nd</sup> fortnight of April and grain yield was recorded.

The yield data presented in table-1 showed that the yield in demonstration plots increased from 15.40 to 33.85 percent over farmers practice during the study period. The variation in yield data during the years was due to aberrant weather condition like frost and sudden development of cold waves. However, owing to dry conditions, the arid region of north western parts of Rajasthan like Nagaur offers an excellent opportunity for high quality seed spices. This congenial weather condition together with quality input management like quality seed and recommended fertilization can be an effective tool to achieve better yield.

The higher yield in demonstration plots might be due to higher yield potential of the variety (RF-125) and direct role of balanced fertilization during crop season. Among the primary nutrients, nitrogen play an important role in grown and dry matter production of the crop (Patel *et al.* 2007). Basal & split application of nitrogen helped in better growth & yield. More over, the soils of experimental sites were inherently poor in phosphorus (12 to 14 kg/ha). Basal application of phosphorus helped in mitigation of phosphorus deficiency and higher grain yield.

The adoption of any technology in modern agriculture can only be feasible and acceptable to farmers if it is economically viable.

The cultivation of traditional crops has become uneconomical due to increasing cost of cultivation under such circumstances, farmers always look forward for more remunerative option. The economic analysis data of fennel (RF-125) presented in Table-2 indicated that fennel (RF-125) along with balanced fertilization gave higher B:C ratio and net additional return over farmers practice during all the four years of crop season. the study reveals that use of improved variety (RF-125) along with balanced fertilization may provide a net additional return upto Rs. 18207 per hectare.

Table 1 : Year wise Impact of fennel RF-125 on yield ha<sup>-1</sup>

S.No.	Year	No. of Farmers	Area (ha)	Average yield q ha <sup>-1</sup>		% increase in yield
				Demonstration	Farmers Practice	
1.	2007-08	10	5	12.17	10.31	18.04
2.	2008-09	10	5	21.05	17.11	23.00
3.	2009-10	10	5	14.38	12.46	15.40
4.	2010-11	15	6	17.40	13.00	33.85

Table 2 : Economic analysis of Fennel variety (RF-125) under semi arid condition of Nagaur

S.No.	Year	Demonstrations		Farmers practice		B:C Ratio		Net additional Return (Rs. ha <sup>-1</sup> )
		Cost (Rs. ha <sup>-1</sup> )	Return (Rs. ha <sup>-1</sup> )	Cost (Rs ha <sup>-1</sup> )	Return (Rs ha <sup>-1</sup> )	Demo	Farmers Practice	
1.	2007-08	16650	58416	15470	49488	1:3.51	1:3.19	7748/-
2.	2008-09	17800	86305	16100	70151	1:4.85	1:4.36	14454/-
3.	2009-10	17950	59520	16200	49840	1:3.32	1:3.08	8030/-
4.	2010-11	18720	78300	17127	58500	1:4.12	1:3.42	18207/-

## References

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