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Production and marketing constraints for cumin (*Cuminum cyminum*) seed in Barmer district

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Abstract

Cumin is an important low volume high value seed spices grown in India. India is the largest producer and consumer of cumin seed in the world while Gujarat is leading in production and Rajasthan in acreage. Cumin is grown on 104828 ha area with an annual production of 28410 tonnes in Barmer district with an average productivity of 348 kg/ha. The yield of cumin crop is adversely affected by incidence of wilt and blight diseases and attack of aphid while economic returns were drastically affected by marketing problems. Besides this, farmers practicing traditional method of cultivation since a long time resulted in decrease in productivity. In view of this a study was conducted in three village of Gudamalani Tehsil of Barmer district in Rajasthan. A set of personnel interview, questionnaire and farm inventory were used to collect basic information and production and marketing constraints from these selected farmers. The variables were scored according to scale already developed and in-use in the extension research studies. The data were analyzed and interpreted in terms of frequencies, percentage and score value. The farmers ranked different constraints like the non declaration of minimum support prizes, unavailability of storage structures, unavailability of loaning facilities, lack of laboratory for testing the seed for quality parameters, lack of processing units etc. are as major constraints and they were analysed and marked as 1, 2,3 and so on according to priorities, respectively.

Key words : Cumin, mandis, marketing, production, ranking

Introduction

Cumin is an important seed spices in India and its seeds are largely used as condiments in the form of an essential ingredient in all mixed spices and in curry powder for flavouring, vegetables, pickles, soups etc. It also has medicinal properties and is used in treatment of carminative, stomachic, astringent and in diarrhea. Cumin is largely exported in form of seed and some quantities in the form of seed oil, cumin powder and oleoresin India is biggest exporter of cumin seed, powder and oils to Japan, Korea, USA etc. As the government has more awake on public health and targeted to produce chemical free (organic) seeds and other products. The individual country has decided permissible limits of residue before accepting it for import. The exporters must consider the permissible limits of chemical in export material to avoid rejection of material to get more foreign exchange. Cumin is the major *rabi* crop of western Rajasthan (Jodhpur, Barmer, Jalore, Jaisalmer, Nagore, Pali etc.) and contributes around 95% of total acreage and 91% in production (Table 1). The major quantities of the total production is marketed in Krishi Upaj Mandis of Gujarat i.e. Unjha, Deesa, Mehsana etc instead in local Mandies.

Material and methods

The productivity in state could be enhanced through adoption of improved technologies particularly by adequate supply of improved seed (wilt resistant variety), availability of non persistent chemicals for soil and seed treatment, IPM and ICM practices have been assessed (Table 2). In view of this the study was conducted in three village of Gudamalani Tehsil of Barmer district in Rajasthan during implementation of project on IPM with ITC Limited. These were selected after comprehensive laboratory analysis of soils and seed of previous crop for residue of plant protection chemicals. These three villages were Dudasar, Mittiberi and Laxmanpura with sample size of 26,25 and 17, respectively (A total 68 farmers constituting 120 ha). The farmers were selected after developed personnel interview, questionnaire and farm inventory to collect basic information regarding PoP's (Choudhary and Pagaria 2012). The major source of irrigation was sprinkler method because soils in these areas are sandy to sandy loam with high infiltration rates. Besides this, the ground water table is very deep water along with brackish in quality. To understand the knowledge of farmers about latest technologies, adoption level, consultancy pattern and other possible reasons of non adoption were considered as dependent variable. The variables were scored according

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Table 1. Area, production and productivity of cumin in Rajasthan during 2012-13

Districts	Area (ha)	Production (t)	Productivity (kg ha^{-1})
Barmer	137370	33635	245
Jalore	122620	41932	342
Jodhpur	106058	44663	421
Nagaur	46590	25108	539
Jaisalmer	29740	6589	222
Pali	15341	6425	419
Sirohi	15341	2204	473
Others districts	22631	15802	
% contribution in state production	95%	91%	
Rajasthan	495691	176358	356
Gujarat (2010-11)*	293000	219000	750

Source: Vital Agriculture Statistics (2012-13): Directorate of Agriculture, Jaipur, Rajasthan
* Agalodiya *et al*., 2012.

to scale developed and in-use in the extension research studies. The data were analyzed and represented in terms of percentage and score value to find out the sequence of constraints according their needs.

Results and discussion

Production constraints in adoption of improved technology

Cumin is grown on assured irrigated condition where input supply is only limited by either availability of inputs or economic conditions of the growers. The soils are sandy to sandy loam with undulating topography forced the farmers to follow broadcasting method of sowing followed by mixing with cultivator resulted into uneven and poor germination and un-uniform crop stand (Veerasamy *et al*., 2003). Similarly it restricts the use of modern equipment for inter cultivation. These practices increased the cost of cultivation as they need higher seed rate (15 kg of seed instead of 5 kg) and more number of costly labours for field operations. The results of study related to production constraints, the grower's ranked the lack of suitable seed drill for cumin sowing (shallow) as top and prime constraint (Table 3). The timely availability of improved seed variety resistant to wilt was the major constraints for adoption of improved practices. Similarly, the government polices like lack of subsidies on inputs (phosphate fertilizers, sulphur fertilizers) and plant protection measures (fungicides and insecticides), poverty

Table 2. Comparison of improved v/s farmers practices for cumin cultivation

S. No.	Particular practices	Demonstration package	Farmers practices
1	Variety	RZ-223, RZ-209, RZ-19 and GC-4	Local
2	Seed rate	12 kg ha^{-1}	15-20 kg ha^{-1}
3	Seed treatment	Carbendazim @ 2 gm kg^{-1} seed +*Trichoderma* @ 4 g kg^{-1} seed	Not applied
4	Sowing method	Line/broadcasting	Local
5	Fertilizer's doses	Recommended dose 30:20:10 (N:P:K)	Without recommendation
6	Plant protection measures	Need based spray of insecticides and fungicides	Higher dose of insecticides and pesticides

Table 3. Production constraints in cumin production

Practices/ villages	Farmer's response (%)				Rank
	Dudasar	Mittiberi	Laxmanpura	Mean	
Improved seed (Govt. verified)	54	60	53	56	II
Awareness about seed treatment	46	44	65	50	III
Seed resistant to wilt & blight	31	32	41	34	VI
High cost of fertilizers	38	36	41	38	V
Timely availability of fertilzers (FOR)	27	24	29	26	VII
Lack of control measures for wilt	38	36	41	38	V
Non availability of timely labour	23	16	24	21	VIII
Lack of seed drill for sowing	62	56	76	63	I
Availability of electricity for irrigation	42	44	47	44	IV
Poor texture of soil	12	16	24	16	IX
Poor economic condition	12	12	18	13	X

etc. also hinders the adoption of improved packages. The timely availability and increased rate of filed workers affected timeliness of farm operations.

Marketing constraints in adoption of improved technology

The cumin is cultivated in India on approximately 0.78m ha (Table 1) and crop lack of minimum support prices. Once the government declares MSP, a gradual increase in sell prices noticed yearly. But the market prices of cumin are around Rs. 100-135/- kg during last decade in comparison to the increase in prices of other crops by two to three folds like pearlmillet (Rs 7/kg in 2006 to 18/ kg in 2010). The results of present study reveal that the non declaration of MSP was top most constraint as reflected by sizable farmers. The produce was sold in market just after harvesting to local vendors for paying the wages; fulfill daily requirement and loans by co-operatives due to economic conditions of the farmers. In this regards, the lack of loan against produce (cumin) is not provided by buyer in Rajasthan as compared to Gujarat (II constraint) (Table 4).The quality of cumin deteriorate day by day and there is a shortage of storage facility for large scale along with lack of processing unit for grading hinder the production of cumin. The unavailability of facilities for determining moisture content is also an important factor as it is detrimental in determination of the price of products. A great lack of an adequate insurance or relief for sufficient period like from government against natural calamities in proportion to area cultivated and crop conditions. The policy was timed bound i.e. the impact of adverse effects of natural calamities will be considered if they occur till january. But, the frequencies of natural calamities like frost and winter rains are more during february are not in favour of farmers. The behaviour of farmers towards selling of their produce in another state, it was concluded that the middle man of Gujarat state purchase their produce without processing like sieving and grading, fixes the prizes in standing crops, money for produce in advance etc. Farmers sold their produce as early as threshed because moisture content also pays the return.

Conclusion

From present study it may be concluded that adoption of improved technologies is easy but constraints for its adoption as a hurdle race where one constraints solved gave birth to another constraints. As it is clear that the time of sowing never wait and it is top most non monetary input in crop production, sowing the crop on time sacrificed by farmers either by using uncertified or untreated seed. Use of these practices makes the crop more vulnerable to increased incidence of wilt and blight diseases. These practices also increased the cost of production on one hand and make it unfit for environment as well as export. Similar finding were reported by Jain and Pagaria (2011) and Jain (2014). Thus, overall market and government policies may make the Rajasthan as most productive state. It is suggested that there is a need to strengthen effective communication methods like SMS services, leaflets, technical bulletins, newspapers, radio talk, trainings etc. to timely availability of inputs and management of weather aberrations.

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Table 4. Marketing constraints in cumin production

Practices/ villages	Farmers response (%)				Rank
	Dudasar	Mittiberi	Laxmanpura	Mean	
Minimum support prices	77	68	53	68	II
Processing units	62	56	59	59	IV
Loaning facility	73	60	82	71	I
Adequate crop insurance	58	40	65	53	V
Storage structures	69	60	53	62	III
Transportation	38	36	41	38	VII
Facilities for moisture estimations	38	44	47	43	VI

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