

Constraints in adoption of production technologies in cumin (*Cuminum cyminum* L.)

Bhagwan Singh

Central Arid Zone Research Institute
Jodhpur-342 003, Rajasthan, India.

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Abstract

A study was conducted in four districts of Rajasthan, namely, Jodhpur, Pali, Bikaner and Jaisalmer, to study the constraints in adoption of production technologies in cumin (*Cuminum cyminum*). The study revealed that non-availability of seeds of high yielding varieties at proper time, lack of knowledge and interest, high cost of seeds, fertilizers and pesticides, lack of technical guidance and lack of finance were perceived by farmers as main constraints in adoption of improved technologies.

Keywords: adoption, constraints, cumin, *Cuminum cyminum*, production technology.

The average productivity of cumin (*Cuminum cyminum* L.) is 2.19 q ha⁻¹ (2002–03) in Rajasthan, which is very low when compared to other spice crops grown in the state, indicating that the new technologies developed in research stations have not been widely adopted by farmers. A study was hence undertaken to understand the constraints perceived by farmers in adoption of improved technologies in cumin.

The study was conducted in four districts namely, Jodhpur, Pali, Bikaner and Jaisalmer of Rajasthan during 2002. Two Panchayat samities, from each District namely, Bilada and Osian from Jodhpur District, Rohet and Jetaran from Pali District, Nokha and Lunkaran from Bikaner District and Pokharan and Jaisalmer from Jaisalmer District were selected randomly. From each Panchayat Samiti one village and from each village 15 cumin growing farmers were selected randomly. Thus 120 respondents were selected for the study. A structured

interview schedule was developed to collect requisite information on constraints perceived by farmers in adoption of improved technologies in cumin.

Socio-economic characteristics of the respondents

Majority of farmers were in the age group of 31 to 50 years (64.2%), illiterate (67.5%), belonged to backward caste (68.3%) and dependent on agriculture as their main source of income (91.7%) (Table 1). Among the farmers, 85.8% did not have irrigation facilities, 56.7% were of the single family category and 62.5% had 6–10 members in their family. Regarding farming experiences, majority of the farmers (65.9%) had 11 to 20 years experience. In case of annual income, 40.8% of farmers had an income above Rs.50,000/-. A majority (61.7%) of the farmers had low extension contact; medium use of sources of communication (87.5%), high economic motivation (75.8%), high scientific orientation (76.7%) and high risk orientation (74.2%).

Table 1. Socio-economic characteristics of cumin farmers

Socio-economic characteristics	Category	Percentage (n=120)
Age	Below 31 years	17.5
	31 to 50 years	64.2
	Above 50 years	18.3
Education	Illiterate	67.5
	Primary	17.5
	Middle	13.3
	Secondary	1.7
Caste	Scheduled Caste and Scheduled Tribe	17.5
	Other Backward Caste	68.3
	General	14.2
Occupation	Agriculture	91.7
	Other occupations	8.3
Land holding	Marginal (below 3.5 ha)	23.3
	Medium (3.51 to 7.00 ha)	36.7
	Large (above 7 ha)	40.0
Irrigation facilities	Available	14.2
	Not available	85.8
Family type	Joint family	43.3
	Single family	56.7
Family size	Below 5 members	16.7
	6 to 10 members	62.5
	Above 10 members	20.8
Farming experiences	Below 10 years	13.3
	11 to 20 years	65.9
	Above 20 years	20.8
Annual income	Below Rs.25,000	16.7
	Rs.25,000 to 50,000	42.5
	Above Rs.50,000	40.8
Extension contact	Low (up to 2 score)	61.7
	Medium (3 to 4 score)	35.8
	High (above 4 score)	2.5
Use of communication sources	Low (up to 21 score)	8.3
	Medium (22 to 42 score)	87.5
	High (above 42 score)	4.2
Economic motivation	Low (up to 5 score)	10.0
	Medium (6 to 10 score)	14.2
	High (above 10 score)	75.8
Scientific orientation	Low (up to 6 score)	7.5
	Medium (7 to 12 score)	15.8
	High (above 12 score)	76.7
Risk orientation	Low (up to 5 score)	10.8
	Medium (6 to 10 score)	15.0
	High (above 10 score)	74.2

Constraints

High yielding varieties: Non-availability of seeds of high yielding varieties at proper time was the main constraint (93.4% of farmers) in the adoption of high yielding varieties. The other important constraints were lack of knowledge (82%), high cost of seed (62%) and lack of finance (50%) (Table 2). Singh *et al.* (2003) also pointed out that non-availability of seed at

Table 2. Constraints in adoption of production technology in cumin

Practice	Percentage (n=120)
<i>High yielding varieties</i>	
Non-availability at proper time	93.4
Lack of knowledge	81.8
High cost of seed	61.7
Lack of finance	50.8
Low economic return	29.3
<i>Seed treatment</i>	
Lack of knowledge	78.3
Lack of interest	73.3
High cost of pesticides	63.3
Non-availability of pesticides	17.5
Lack of finance	28.3
<i>Recommended seed rate</i>	
Lack of knowledge	58.3
Non-availability of seed	41.7
Lack of finance	25.8
<i>Method of sowing</i>	
Lack of technical guidance	35.0
Lack of interest	33.3
No need	74.2
Not willing to take risk	69.2
<i>Use of chemical of fertilizers</i>	
Lack of knowledge	51.7
High cost of fertilizers	57.5
Non-availability of fertilizer	37.5
Non-availability of credit facilities	31.7
Low economic return	14.2
<i>Plant protection measures</i>	
Lack of knowledge	87.5
High cost of plant protection chemicals	70.8
Non-availability of plant protection chemicals	25.7
Non-availability of plant protection equipments	54.2
Lack of finance	34.2
Ineffectiveness of pesticides	15.8

the proper time as the main constraint in cumin cultivation in Rajasthan.

Seed treatment: Lack of knowledge was the main constraint (80% of farmers) in adopting seed treatment technologies followed by lack of interest (74%) and high cost of pesticides (64%) (Table 2). Similar findings were also reported by Singh *et al.* (2003) and Meena *et al.* (2007) in Rajasthan.

Seed rate: Lack of knowledge was the main constraint (58.3%) for not adopting the recommended seed rate. Other constraints were non-availability of seed (41.7%) and lack of finance (25.8 %) (Table 2).

Method of sowing: Most of the farmers viewed that there was no need of adopting recommended method of sowing (74.2%), while 69.2% of the farmers felt that they did not want to take risk in adopting new methods of sowing (Table 2).

Chemical fertilizer application: The practice of application of recommended chemical fertilizers was not adopted by most of the farmers due to the high cost (57.5%). Lack of knowledge (51.7%) was also a major factor for non-adoption of recommended chemical fertilizers (Table 2). Similar findings were also reported by Singh *et al.* (2003) and Rathore *et al.* (2007) in Rajasthan.

Plant protection measures: Lack of knowledge was the main constraint (87.5%) in adoption of plant protection measures followed by high cost of plant protection chemicals (70.8%) and non-availability of plant protection equipments (54.2%) (Table 2). The above finding is in conformity with the findings of Singh *et al.* (2003) and Rathore *et al.* (2007).

The study indicated that the major constraints perceived by farmers were non-availability of seeds of high yielding varieties at proper time, lack of knowledge and interest, high cost of seeds, fertilizers and pesticides, lack of technical guidance and lack of finance for adoption of improved technologies. The study suggests that there is need for educating farmers about improved technologies and supply of required inputs

at reasonable cost at proper time to boost up the production of cumin in the arid zone of Rajasthan.

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