



Research Paper

Cultivation and production cost of cumin in Banaskantha district of north Gujarat

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ABSTRACT : India produces 70 per cent of global spice production (105100 MT of total production in 2010). In Gujarat state, cumin is grown mostly in the northern district of the state *i.e.* Mehsana, Banaskantha and Patan district. Cumin was grown under 2,16,000 hectares in Gujarat state, out of this 39897 hectare was contributed by Banaskantha district during the year 2011-12. The aim of this study was to analyze the cultivation/production cost of cumin and to find return over cost. The study is based on data collected from 108 farmers selected from six villages selected purposively and one regulated market *i.e.*, Tharad of Banaskantha district of Gujarat state. It was calculated that the average total cost of cultivation of cumin was 48905/- Rs. per hectare and net income of cumin was 39852/- Rs. per hectare for the year 2012-2013. The cost of cultivation of cumin for small farmers was higher as compared to medium and large size farmers. Major inputs cost was small farmers contributed 33.09 per cent to total cost of cultivation which was 8.60, 20.34 and 4.15 per cent, for seed, human labour and fertilizer, respectively. The cost of cultivation (cost C₂) for small size group of farmers was estimated 55592 Rs. /ha.

KEY WORDS : Cumin, Cost of cultivation per hectare, Cost of production per quintal, Gross return, Net return

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INTRODUCTION :

India produces 70 per cent of global spice production (105100 MT of total production in 2010) The major seed spices are Coriander, Cumin, Fenugreek and Fennel. Main producing states are Rajasthan and Gujarat accounting more than 80 per cent of area and production. Spices exports almost doubled during last decade and India commands world spice trade with 45 per cent share in volume and 30 per cent share in value (Lal and Mehta, 2013). In India, during the year 2011-12 the cumin was grown in 5,62,083 hectares with 3,42,000 tonnes

production.

The cumin seed has a significant demand all around the globe especially in places where spicy food is preferred. Next to pepper, cumin is considered one of the most important spices in the world. Cumin in grind form is also part of various spicy mixtures the most important being 'Garam masala' which is extensively used throughout South Asia. It also has a lot of medicinal value. Cumin crop is produced as seeds which are used as a spice in cookery, pickle making, medicine and oil preparation. The seeds are used in medicine purposes and taken internally either as such or in the form of

decoction in India they are largely used much in the same way as and frequently in conjunction with the seeds of coriander (Lal and Mehta, 2013).

Amongst, Gujarat state cumin is grown mostly in the northern district of the state *i.e.* Mehsana, Banaskantha and Patan district. Cumin was grown under 2,16,000 hectares in Gujarat state, out of this 39897 hectare was contributed by Banaskantha district during the year 2011-12. Hence, the present study was under taken in Banaskantha district with following objectives:

- To analyze the per hectare cost of cultivation and per quintal cost of production for cumin.
- To work out per hectare returns and input-output ratio over different cost concepts and
- To study the pattern of disposal of cumin by selected farmers.

Scope and utility :

The scope of the present study is limited to the above mentioned objectives. Even though the study is restricted to the selected sample of cumin growers in Banaskantha district, the findings by and large, can be projected to the areas having similar agro-climatic condition for knowing the economic aspects of the marketing of cumin. The finding of the study will be of great use to farmers, researchers, traders and policy makers which would be conducive to minimize the cost of cultivation and production by the cumin growers.

Limitations of the study :

- Constraint in time and resource of the researcher forced him to select a cluster of two taluka for the study. Hence, results are largely applicable to those areas where similar conditions prevail.
- The interview method of data collection requires the respondents to recall from their memories about cultural operations. Hence, the findings may be subject to memory lapses of the respondents.
- The average price realized during the study year was calculated and used in converting production figures from quantities to value terms.
- The analysis of data through largely based on the tabular methods, attempts are made to have a deeper probe into the data particularly on the cultivation and production cost of cumin for arriving at meaningful conclusions

The present investigation is carried out to study per hectare cultivation cost and per quintal production cost

of cumin growers. The methodology and analytical procedure adopted to generate information are explained in the present study.

Area of study :

The area of the study was being Banaskantha district of North Gujarat region of the Gujarat State. The Banaskantha district was selected purposively because the cumin crop become most popularize among the farming community in Banaskantha district as the area under cultivation of cumin is increasing day by day in this district. Hence, Banaskantha district was selected purposively for the present study.

MATERIALS AND METHODS :

In order to fulfill the objectives of the study, a multistage random sampling (three stage) technique was adopted. Two talukas *viz.*, Tharad and Dhanera were dominating for cumin cultivation was purposively selected for the present study. At the next stage, three villages from Tharad and three villages from Dhanera taluka were selected purposively. Thus, total six villages were under the study based on relative importance of cumin crop in the cropping pattern observed in different villages. From each category, six farmers from each village were selected randomly, so as to have a sample of 18 farmers from each village. Thus, total 108 farmers were taken under the study. Similar methodology is also used by Patel (2005).

Data collection :

From the selected farmers the primary data were collected regarding to the area under cumin, cost incurred for different inputs, cost of production, prices received, the quantity sold, income earned etc. This information was collected through personal interviews with the farmers with the help of pre-tested comprehensive schedules related to cumin crop for the year 2012-13. Similarly, relevant information's on wholesale prices of cumin was obtained from the record of the Agricultural Produce Market Committee (APMC) as secondary data for the period from 1997-98 to 2011-12 years.

Statistical analysis :

The data were collected through interview a schedule was subjected to statistical analysis for evaluating the objectives of the study. The various statistical tools *viz.*,

simple average, tabular analysis and cost concepts were used. The similar tools were also applied by Patel (2005).

Cost concept:

A simple tabular analysis was carried out to accomplish the objectives of present study. Economics of cumin were worked out by using standard cost concept which is used by commission on agricultural costs and prices. The procedures used for computation of cost are as under:

Cost A:

It is actual paid out cost by the cultivators in the form of cash and kind. This cost includes the expenditure on various items as Hired human labour, Bullock labour (Owed and hired), Bullock labour (Owed and hired), machinery charges, manures, seeds, fertilizers, plant protection, depreciation and repair changes, irrigation charges, land revenue and other taxes, miscellaneous charges and interest on working capital.

Cost B:

Cost A+ rental value of own land and interest on fixed capital @10 per cent.

Cost C₁:

It includes cost 'B' plus imputed value of family labour.

Cost C₂:

Cost C₁+ 10 per cent of Cost C₁ (Managerial cost).

RESULTS AND DATA ANALYSIS :

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Cost of cultivation of cumin :

The cost of cultivation studies in an area not only furnishes information on the relative profitability of cultivation of a crop, also serves as a guide for better choice and combinations of farm input for maximizing returns. The cost of cultivation of cumin mainly depends on the major inputs used, techniques for cultivation, yield and prices for major inputs. Profit would depend on sale price and yield obtained and cost incurred. Generally, farmers do not take into account their fixed costs such

as interest on owned fixed capital, depreciation use of own implements, farm yard manure and family labour in the total cost of production and thereby, he had relevance of Cost-A only, which includes only operational cost. But in this study the Cost-A, Cost-B, Cost-C₁ and Cost-C₂ were estimate for the Banaskantha district of north Gujarat, where the farmers cultivate more cumin crop in more area.

The cost of cultivation per hectare of cumin with different sizes of farm is presented in Table 1. The average cost of cultivation of cumin was estimated 48905 Rs./ha. The operating cost (cost A) was about Rs.28071 (57.40%). The seed cost Rs.3912 (8%) and human labour (hired + family labour) Rs. 9159 (18.73%). The remaining cost was distributed between other items such as fertilizer Rs.1772 (3.62%), bullock labour Rs.2764 (5.65%), irrigation Rs. 6565 (13.4%), manure Rs. 4702 (9.61%) and rental value of own land Rs. 11500 (23.5%). The gross income for average farmer was 88767 Rs./ha and net income was 39862 Rs./ha over Cost-C₂ it was also concluded that the small, medium and large farmer earned income Rs. 40220, Rs. 43619, Rs. 38240 over cost C₂, respectively. Thus it was clear that medium farmer earned more income than small and large farmer. The share of seed cost in all the farm categories was higher due to higher price of cumin seed in the studied area this year the price of seed was high 4000 Rs. per 20 kg.

The per cent of share of seed in small, medium and large farmers was estimated 8.61, 8.78 and 7.85 per cent of the total cost, respectively. The irrigation charges was higher in case of medium farmers. It may be observed that the share of family labour (7.74%) was higher in case of small farmers. It was further revealed that the percentage share of farm yard manure was the highest in case of small farmers as compare to medium and large farmers because small farmers were in the position to supply more quantity of farm yard manure to their fields while, the cost of chemical fertilizer was more in small size of holdings. The results are in line with Patel and Patel (2013).

Returns to cumin producers :

Table 2 shows different costs of cultivation with their net income over different costs. It was indicated that the Cost-A was higher for small farmers (33333 Rs./ha) than rest of the farmer groups. Generally, farmers always count operational cost and get profit from Cost-A. It was also observed that higher net return per hectare was

earned by medium farmers 43619 Rs./ha over cost C₂. The results are in line with Sharma and Singh (2013).

Net income over Cost-A was highest for medium farmers (64206 Rs./ha), followed by small farmers (62479 Rs./ha) and large farmers (59034 Rs./ha). Net income over Cost-C₂ was the highest for medium farmers (43619

Rs./ha), followed by small farmers (40220 Rs./ha) and large farmers (38240 Rs./ha). In general to get higher net returns, fixed Cost per unit of land and unit of output is required to be reduced by increasing yield. There is high potential to increase production and productivity of cumin in all categories of farmers in Banaskantha district.

Table 1 : Details of cost of cultivation of cumin crop per hectare in Banaskantha district of Gujarat State for the year 2012-13

Particulars	Small farmers			Medium farmers			Large farmers			Average farmers			
	Physical unit	Value (Rs.)	Per cent to total cost	Physical unit	Value (Rs.)	Per cent to total cost	Physical unit	Value (Rs.)	Per cent to total cost	Physical unit	Value (Rs.)	Per cent to total cost	
Hired labour	47	7029	12.6	38	5554	11.29	37	5583	11.6	38	5671	11.60	
Bullock labour	6	3101	5.58	5	2492	5.07	6	2845	5.91	6	2764	5.65	
Seed (kg)	27	4774	8.61	24	4312	8.78	18	3776	7.85	22	3912	8	
Manure (Carts)	12	6421	11.6	8	4219	8.59	10	4732	9.84	10	4702	9.61	
Fertilizer(kg)	N	76	2305	4.15	69	2075	4.2	67	1591	3.31	68	1772	3.62
	P	38		33			27			30			
	K	-		-			-			-			
Irrigation	-	6507	11.72	-	6816	13.9	-	6464	13.3	-	6565	13.4	
Insecticides	-	1545	2.8	-	1638	3.34	-	1597	3.30	-	1605	3.27	
Miscellaneous cost	-	5720	10.3	-	3508	7.13	-	3248	6.8	-	3484	7.12	
Depreciation	-	1000	1.80	-	1010	2.06	-	1000	2.1	-	1003	2.1	
Interest on working capital	-	1352	2.43	-	1195	2.43	-	1211	2.56	-	1216	2.49	
Cost : A	-	33333	60	-	28601	58.10	-	27315	56.8	-	28071	57.40	
Rental Value of own land	-	11500	20.71	-	11500	23.38	-	11500	23.9	-	11500	23.5	
Interest on fixed capital	-	1400	2.52	-	1400	2.85	-	1400	2.91	-	1400	2.86	
(Excluding land revenue)													
Cost : B	-	46233	83.2	-	41501	84.4	-	40215	83.6	-	40971	83.8	
Family labour	29	4305	7.74	21	3216	6.5	23	3521	7.32	23	3488	7.13	
Cost : C ₁	-	50538	90.91	-	44716	90.91	-	43736	90.91	-	44459	90.91	
10 % of Cost C ₁	-	5054	9.09	-	4472	9.09	-	4374	9.09	-	4446	9.09	
Cost : C ₂	-	55592	100	-	49188	100	-	48109	100	-	48905	100	
Production:													
Main product (Qtls.)	6.84	95812	-	6.63	92807	-	6.17	86349	-	6.34	88767	-	
Gross income (Rs.)	-	95812	-	-	2807	-	-	86349	-	-	88767	-	
Net income (Rs.)	-	40220	-	-	43619	-	-	38240	-	-	39862	-	

Table 2 : Income from cumin over different costs of production in Banaskantha district, 2012-13

Particulars	Small farmers (Rs. / ha)	Medium farmers (Rs./ ha)	Large farmers (Rs./ha)	Average (Rs./ ha)
Cost-A	33333	28601	27315	28071
Cost-B	46233	41501	40215	40971
Cost-C ₁	50538	44716	43736	44456
Cost-C ₂	55592	49188	48109	48905
Gross income	95812	92807	86349	88768
Net income over different cost				
Net income over Cost-A	62479	64206	59036	60696
Net income over Cost-B	49579	51306	46134	47796
Net income over Cost-C ₁	4527	48091	38613	44308
Net income over Cost-C ₂	40220	43619	38240	39862

The results are confirmed with the results of Patel (2005).

Summary and conclusion :

The average total cost of cumin cultivation was 48905 Rs./ha for the selected farmers of Banaskantha district and cost of production returns over Cost-A, Cost-B, Cost-C₁ and Cost-C₂ was decreased with increase in the size of holdings. Costs of rental value of owned land was the highest followed by the cost of human labour, irrigation, farm yard manure, seeds, miscellaneous costs, etc., among the individual cost of items. The labour cost (family as well as hired labour) was decreased with increase in size of holdings because small farmers used more labour for their farm operations whereas large farmers had to depend on farm mechanization for completing their farm operation in time. Due to shortage of human labour and also the small farmers have tendency to use resources intensively in crop production. The cost of cumin production for the year 2012-13 shows that the average net income over Cost-C₂ was 39862 Rs./ha. The net income of medium farmers was the highest *i.e.* 43619 Rs./ha. The results are similar to the results of Farm cost Scheme (Cumin crop) of Department of Agricultural Economics, S.D. Agricultural University, Sardarkrushinagar.

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