Int.J.Curr.Microbiol.App.Sci (2017) *6*(12): 474-485

International Journal of Current Microbiology and Applied Sciences
ISSN: 2319-7706 **Volume 6 Number 12 (2017) pp. 474-485**
Journal homepage: http://www.ijcmas.com

Original Research Article https://doi.org/10.20546/ijcmas.2017.612.058

An Economic Analysis of Coriander Production in Mungeli District of Chhattisgarh State, India

Naresh Kumar and Vikrant Kumar*

Department of Agricultural Economics, Indira Gandhi Krishi Vishwavidyalaya, Raipur- 492012, Chhattisgarh, India
**Corresponding author*

Keywords

Cost of cultivation, Production and yield of coriander, Cropping pattern, Cost of return and marketable surplus.

Article Info

Accepted:
07 October 2017
Available Online:
10 December 2017

A B S T R A C T

The present study is based on economic analysis of coriander production and marketing with the objective to work out the cost and return and marketing pattern of coriander in the study area. The study was conducted in 15 villages of 2 blocks of Mungeli district of Chhattisgarh state. The major finding of this study revealed that, on an average, the cost of cultivation of coriander was calculated as Rs.24397.49 per hectare and which showed an increasing trend from marginal to large farms and average input-output ratio was observed to be 1:2.65, whereas, input-output ratio was showing increasing trend from marginal to large farms in the production of coriander. Two marketing channels were prevailing in marketing of coriander, in the study area *viz.*, Channel-I: Producer - Village merchant-Consumer, Channel-II: Producer - Consumer (village market). And an average marketable surplus of coriander was 85.21 per cent to total production.

Introduction

Coriander is the one of the most valuable crops of India which belongs to the umbel lifers family it is grown almost throughout the country. There are different varieties of coriander found all over the world. Coriander is an indispensible condiment of every Indian household. It is used in a number of activities such as vegetables, spice, purposes. The health benefits of coriander include its use in the treatment of skin inflammation, high cholesterol levels, diarrhea, mouth ulcers, anemia, indigestion, menstrual disorders, smallpox, conjunctivitis, skin disorders, and blood sugar disorders, while also benefiting eye care. Coriander is also increasingly popular as a means of preventing nausea, vomiting, and other stomach disorders. Its wealth of bioactive compounds means that new health benefits are always being discovered in this power-packed plant. Coriander occupies an important place in Indian diet and it is consumed daily as condiment in one or the other form. Coriander are also rich in vitamin A and K, E. Major coriander growing countries are Moracco, Canada, India, Pakistan, Romania, India, Turkey, Egypt, and Israel, Burma etc. The largest producer of coriander in the world is Canada accounting for 9,000 million tonnes, coriander are grown in almost all state of the

country and the major growing state in terms of production are Rajsthan 11, 7084 million tonnes, Madhya Pradesh 75,000 million tonnes, Assam 53,136 million tonnes, Gujarat 32,310 million tonnes, Andhra Pradesh 5018 million tonnes etc. (Indian horticulture database 2013-14).

Coriander is the important vegetable, spice crop of the Chhattisgarh state with area and production of 314 thousand million tonnes in 13,374 ha (Indian horticulture database 2013-14). Production of coriander plays an important role in improving the economic condition of farmer's specially marginal and small farmers at one side and help to meet out the nutritional requirements of the people on the others side. The present study was undertaken to analyze economics and constraints of coriander cultivation in Mungeli district of Chhattisgarh state.

Materials and Methods

Multi stage sampling design was adopted for the ultimate selection of coriander growing farmers. Mungeli district was selected purposively as study area in the first stage, in the second stage Lormi block was selected.

In the third stage 12 numbers of villages in Mungeli block and 3 numbers of villages in Lormi block are selected from these two blocks. Therefore Devri, Surighat, Ramgarh, Rehuta, Surda, Silli, Jujharbhatha, Fandwani, Chatan, Jhitkaniha, Majgao, Newaspur villages from Mungeli block, and Koylari, Khirwar, Chilphi villages in Lormi block, and fourth stage 150 farmers were randomly selected for the study. The required primary data collected through well prepared schedule and questionnaire from respondents and secondary information from reviews, literatures and from various government sources including the Directorate of agriculture, Land commissioner, Ministry of agriculture India as well Chhattisgarh. To estimate cost of cultivation of coriander standard method was adopted which include cost A, A_1, B and cost C. Total cost of cultivation is calculated separately for the different category of farmers as well as for overall farmers collectively. Both, variable and fixed cost is included for the calculation of cost of cultivation. Cost concept worked out i.e. Cost A1: It includes the expenditure on seed, manures and fertilizers, hired human labour, land revenue, irrigation charges, machinery charges, interest on working capital and depreciation on farm implement.

Cost A2: = Cost A1 + Rent paid for leased in land.

Cost B: Cost A + Rental value of owned land + interest on own fixed capital (excluding land).

Cost C: Cost B + imputed value of family labour.

Input output ratio

It is the ratio between input and output and computed by dividing value of total output by value of total input.

Input output ratio = O/I

Where,

I = Total input and
O = Total output

Marketable surplus: For calculating the marketable surplus following formula will be used.

MS = P - (C+S)

Where,
MS = Marketable Surplus

P = Total Production
C = Family Consumption
S = Quantity kept for seed purpose

General characteristics of sample households

The general characteristics of sample households are present in Table 1 and figure 1, 2, 3, 4 represents the general characteristics of farm family's size and level of education at the sampled farms. The table reveals that the average number of family members of major spice growers is observed as 23.71. This number is estimated as 5.92, 5.87, 5.92, and 6.00 at marginal, small, medium and large farms respectively. The overall male-female ratio was 79.91:52.08 percent in the total population.

The level of education in the sampled household in terms of percentage was found to be 86.80 percent on an average. It was observed that 29.76 percent of the total sampled populations have primary level of education while these figures are 25.59 percent, 25.14 percent and 6.31 percent for middle, high school and graduate level of education. Among various size groups of farms, highest literacy percentage (87.08 percent) is observed at small farms followed by marginal (86.74 percent), medium farms (86.66 percent) and large (86.36 percent) farms.

The Table also reveals the caste and occupation pattern at the sampled farms. It is also observed that on an average 32.66 percent of the sampled families belong to scheduled caste, 30.66 percent belong to other backward class, 28.00 percent belong to scheduled tribe and 7.33 percent belong to general category. The occupation of farmers is also presented in the Table. The Table shows that 30.32 percent farmers of total family members are involved in farming. The percentage of members involved in farming as the main occupation in marginal, small, medium and large categories of farmers is estimated at about 30.12, 30.49, 29.77 and 36.36 percent respectively.

The Business in marginal, small, medium and large categories of farmers is estimated at about 0, 1.09, 1.33, and 4.54 percent respectively. About 5 percent members are involved in services and agricultural laborers for their livelihood in Table 4.1.

Cropping pattern

The cropping pattern of sampled farms is presented in Table 4.4 and fig 5,6 the gross cropped area is observed as 1.55 hectare, 2.45 hectare, 3.87 hectare, and 4.97 hectare at marginal, small, medium, and large farms, respectively along with an average of 3.02 hectare at sampled farms, of the gross cropped area, 2.08 hectare (61.72%) is allocated during kharif season; the area under kharif season in different crops is observed as 68.38 %, 67.34%, 66.40 % and 61.77% at marginal, small, medium and large farms respectively.

The area allocated during rabi season is estimated as 31.61% at marginal, 32.65% at small, 33.59% at medium and 38.22% at large farms. The cropping intensity is observed as 146.22 percent at marginal farms, 148.48% at small farms 150.58% at medium farms and 161.88% at large farms.

The average cropping intensity is estimated as 153.48% in this study area. It is concluded that the cropping intensity is almost equal at small, medium and large farms while it is relatively less at marginal farms. The scarcity of irrigation water particularly at the marginal farms (Table 2) is the main reason to allocate less area during rabi season which attribute relatively less cropping intensity at these farms.

Results and Discussion

Input wise cost of cultivation of coriander at sampled households

Economics of coriander crop

The economics of coriander crop is presented in Table 3 and fig 7. It clearly shows that the cost of cultivation per hectare of coriander was higher on large farms as compared to marginal farms. Over all, on an average the cost of cultivation per hectare of coriander was found to be Rs. 24397.49 per hectare. The cost of cultivation in case of large farm was higher (Rs. 29105.94 /ha.) as compared to marginal farms (Rs.19715.96 /ha.), small (Rs. 22787.92 /ha.) and medium farms (Rs. 26419.91 /ha.).

The cost of cultivation per hectare showed a rising trend with the increase in size of farm. It was due to the fact that the large farmers incurred more expenditure on modern farm input like quality seed, fertilizer, plant protection material, hired labour etc. As their capabilities of investment on major inputs which results better economic status compared to marginal, small and medium farmers.

Yield, value of output and cost of production per quintal

The yield, value of output per hectare and cost of production per quintal of coriander on the sample farms have been worked out in Table 4 and fig 8, 9. It indicates that the average yield per hectare of coriander was 12.9 quintal on the sample farms. The cost of production per quintal of coriander on an average was worked out to Rs.2017.98. It came to Rs. 1971.59, Rs. 2071.62, Rs. 2032.30 and Rs. 1940.39 for marginal, small, medium and large farm size respectively.

Table.1 General characteristics of sample households

S. No.	Particulars	Marginal	Small	Medium	Large	Aggregate
1.	No. of sample	28(100.00)	62(100.00)	38(100.00)	22(100.00)	150(100.00)
2.	No. of family member					
	Male	80(48.19)	174(47.80)	107(47.55)	64(48.48)	425(79.91)
	Female	86(51.80)	190(52.21)	118(52.44)	68(51.51)	462(52.08)
	Total	166(100.00)	364(100.00)	225(100.00)	132(100.00)	887(100.00)
3.	Average family size	5.92	5.87	5.92	6.00	5.92
4.	**Age groups**					
	<15	51(30.72)	113(31.04)	70(31.11)	40(30.30)	274(30.89)
	15-60	81(48.79)	176(48.35)	109(48.44)	65(49.24)	431(48.59)
	>60	34(20.48)	75(20.60)	46(20.44)	27(20.45)	182(20.51)
5.	**Education level**					
	Illiterate	22(13.25)	47(12.91)	30(13.33)	18(13.63)	117(13.19)
	Primary	51(30.72)	108(29.67)	65(28.88)	40(30.30)	264(29.76)
	Middle	42(25.30)	94(25.82)	58(27.77)	33(25.00)	227(25.59)
	High &H.S.	41(24.69)	92(25.27)	57(25.33)	33(25.00)	223(25.14)
	Graduate	10(6.02)	23(6.31)	15(6.66)	8(6.06)	56(6.31)
	Total literate	144(86.74)	317(87.08)	195(86.66)	114(86.36)	770(86.80)
6.	**Social groups**					
	OBC	9(32.14)	20(32.25)	10(26.31)	7(31.81)	46(30.66)
	ST	8(28.57)	18(29.03)	10(26.31)	6(27.27)	42(28.00)
	SC	9(32.14)	19(30.64)	14(36.84)	7(31.81)	49(32.66)
	General	2(7.14)	5(8.06)	2(52.26)	2(9.09)	11(7.33)
7.	**Occupation**					
	Farming	50(30.12)	111(30.49)	67(29.77)	41(36.36)	269(30.32)
	Business	0(0.00)	4(1.09)	3(1.33)	6(4.54)	13(1.46)
	Service	0(0.00)	2(0.54)	4(1.77)	6(4.54)	12(1.35)
	Agriculture labour	12(7.22)	---	---	---	12(1.35)

Note 1: Figures in the parenthesis indicate percentage to the total number of family members.
Note 2: Figures in the parenthesis represent percentage to the total number of samples.

Table.2 Cropping patterns at sampled household (ha./farm)

S. No.	Particulars	Marginal	Small	Medium	Large	Average
A.	**Kharif**					
1.	Paddy	0.57	1.02	1.42	1.69	1.15
2.	Soybean	0.13	0.23	0.38	0.41	0.31
3.	Chilli	0.10	0.11	0.18	0.28	0.13
4.	Brinjal	0.09	0.09	0.22	0.24	0.09
5.	Okara	0.07	0.05	0.09	0.13	0.07
6.	Red gram	0.06	0.08	0.19	0.18	0.18
7.	Black gram	0.04	0.0.07	0.09	0.14	0.15
	Sub total	1.06 (68.38)	1.65 (67.34)	2.57 (66.40)	3.07 (61.77)	2.08 (61.72)
B.	**Rabi**					
1.	Paddy	--	0.22	0.28	0.42	0.25
2.	Coriander	0.11	0.13	0.25	0.36	0.18
3.	Onion	0.09	0.12	0.20	0.26	0.14
4.	Potato	0.04	0.05	0.03	0.07	0.09
5.	Wheat	0.05	0.06	0.05	0.17	0.11
6.	Gram	0.11	0.12	0.13	0.35	0.24
7.	Lathyrus	0.07	0.08	0.09	0.18	0.17
8.	Lentil	0.02	0.02	--	0.09	0.11
	Sub total	0.49 (31.61)	0.80 (32.65)	1.3 (33.59)	1.90 (38.22)	1.12 (33.23)
	Gross cropped area	1.55 (100.00)	2.45 (100.00)	3.87 (100.00)	4.97 (100.00)	3.02 (100.00)
	Net cropped area	1.06	1.65	2.57	3.07	2.08
	Cropping intensity (%)	146.22	148.48	150.58	161.88	153.84

Table.3 Economics of Coriander on different size groups of farms

(Rs./ha.)

S. No.	Cost	Farm size				
		Marginal	**Small**	**Medium**	**Large**	**Overall**
(A)	**Variable cost**					
1.	Human labour					
(a)	Family labour	7400.11 (37.53)	6400.09 (28.09)	4000.15 (15.14)	2500.21 (8.59)	5196.74 (21.30)
(b)	Hired labour	1100.08 (5.58)	2400.12 (10.53)	6300.04 (23.85)	8200.08 (28.17)	4364.21 (17.89)
	Total human labour	8500.19 (43.11)	8800.21 (38.62)	10300.19 (38.99)	10700.29 (36.76)	9560.95 (39.19)
2.	Bullock labour	450.16 (2.28)	210.00 (0.92)	150.19 (0.57)	00.00 (0.00)	206.59 (0.85)
3.	Machine labour	1150.12 (5.83)	1440.11 (6.32)	2150.13 (8.14)	2600.04 (8.93)	1803.62 (7.39)
4.	Seed cost	1850.05 (9.38)	2150.31 (9.44)	2500.00 (9.46)	3500.16 (12.03)	2418.02 (9.91)
5.	Manure and fertilizers	1075.11 (5.45)	2650.00 (11.63)	3240.11 (12.26)	3580.21 (12.30)	2669.66 (10.94)
6.	Plant protection	350.17 (1.78)	950.13 (4.17)	1250.13 (4.73)	1620.00 (5.57)	1037.40 (4.25)
7.	Irrigation	402.00 (2.04)	520.02 (2.28)	650.12 (2.46)	720.11 (2.47)	571.75 (2.34)
8.	Interest on working capital	367.16 (1.86)	445.14 (1.95)	538.04 (2.04)	605.13 (2.08)	487.14 (2.00)
	Total variable cost	14144.96 (71.74)	17165.92 (75.33)	20778.91 (78.65)	23325.94 (80.14)	18755.13 (76.87)
(B)	**Fixed cost**					
1.	Depreciation	59.94 (0.30)	105.25 (0.46)	122.48 (0.46)	250.00 (0.86)	124.42 (0.51)
2.	Land revenue	5.00 (0.03)	5.00 (0.02)	5.00 (0.02)	5.00 (0.02)	5.00 (0.02)
3.	Rental value of owned land	5000 (25.36)	5000 (21.94)	5000 (18.93)	5000 (20.49)	5000 (20.49)
4.	Interest fixed capital	506.49 (2.57)	511.02 (2.24)	512.74 (1.94)	525.05 (2.10)	512.94 (2.10)
5.	**Total fixed cost**	5571.00 (28.26)	5621.06 (24.67)	5640.02 (21.35)	5780.05 (23.13)	5642.36 (23.13)
	Total cost = (A+B)	19715.96 (100.00)	22787.92 (100.00)	26419.91 (100.00)	29105.94 (100.00)	24397.49 (100.00)

Table.4 Per hectare yield value of output and cost of production per quintal of Coriander

S. No.	Particulars	Marginal		Small		Medium		Large		Over all	
		Qt./ha.	Rs/Qt.	Qt./ha.	Rs/Qt.	Qt./ha	Rs/Qt.	Qt./ha.	Rs/Qt.	Qt/ha.	Rs/Qt
1.	Main yield	10.00	5200.03	11.01	5300.05	13.05	5400.00	15.03	5500.04	12.09	5379.12
2.	Gross income	52000.16		58300.11		70200.31		82500.19		64830.77	
3.	Cost of cultivation	19715.96		22787.92		26419.91		29105.94		24397.49	
4.	Cost of production (Rs/Qt.)	1971.59		2071.62		2032.30		1940.39		2017.98	
5.	Input output ratio	1:2.63		1:2.55		1:2.65		1:2.83		1:2.65	

Table.5 Cost and return of Coriander on the sample farm for different groups of farms

(Rs./ha.)

S. No.	Particulars	Farm size				Over all
		Marginal	Small	Medium	Large	
1.	Input cost	19715.96	22787.92	26419.91	29105.94	24397.49
2.	Output cost	52000.16	58300.11	70200.31	82500.19	64830.77
3.	Net income	32284.02	35512.19	43780.04	53394.25	40433.28
4.	Family labour income	32284.42	35512.18	43781.91	53394.01	40433.07
5.	Farm business income	37790.91	41023.83	49293.84	58919.06	4594.64
6.	Farm invest-ment income	37790.53	41023.01	49292.83	58919.11	45946.22

Table.6 Marketable surplus of Coriander of sampled households

(Quintal /farm)

S. No.	Particulars	Size groups				Overall
		Marginal	Small	Medium	Large	
1.	Total quantity produced	1.80 (100.00)	3.20 (100.00)	4.01 (100.00)	8.32 (100.00)	3.99 (100.00)
2.	Quantity retained for the wages	0.10 (5.55)	0.30 (9.37)	0.44 (10.97)	0.61 (7.33)	0.36 (9.02)
3.	Quantity used for home	0.08 (4.44)	0.18 (5.62)	0.26 (6.48)	0.42 (5.04)	0.23 (5.76)
4.	Total quantity utilized	0.18 (10.00)	0.48 (15.00)	0.7 (17.45)	1.03 (12.37)	0.59 (14.78)
5.	Marketable surplus	1.62 (90.00)	2.72 (85.00)	3.31 (82.54)	7.29 (87.62)	3.4 (85.21)

Note: Figures in parentheses indicate percentage to total quantity product.

Fig.1 Caste wise classification in sampled households (in percentage)

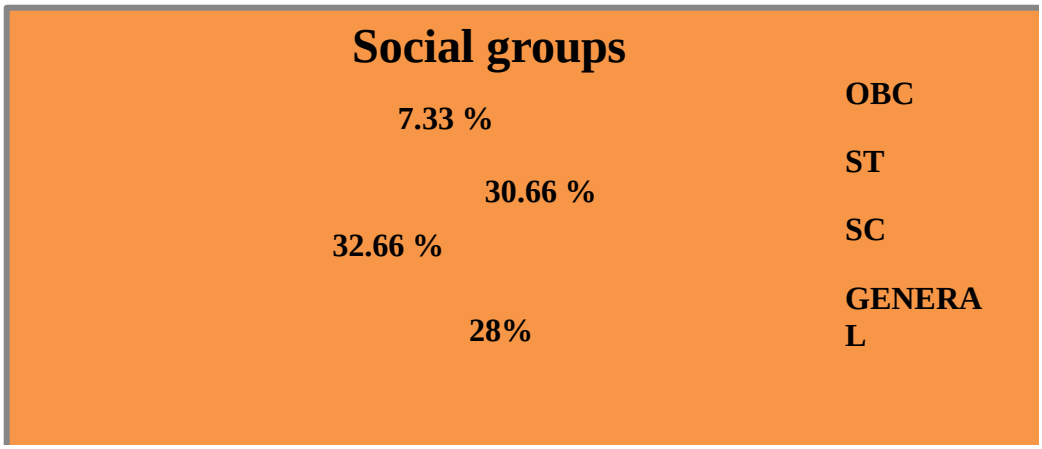


Fig.2 Age groups in sampled households (in percentage)

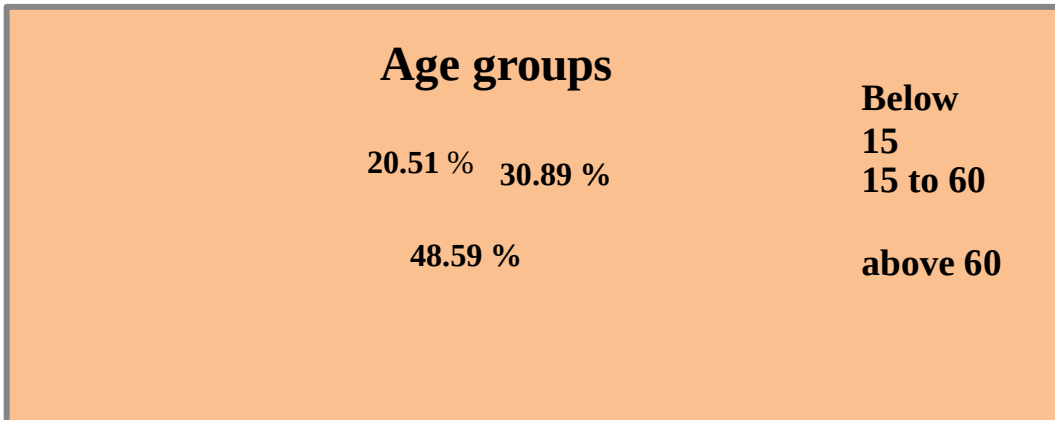


Fig.3 Average family member in sampled households

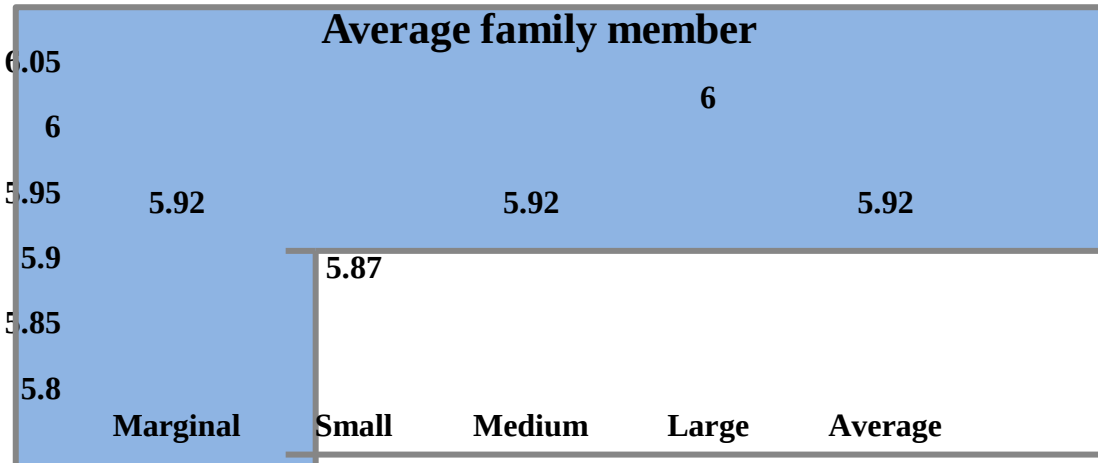


Fig.4 Literacy percentage in sampled households (in percentage)

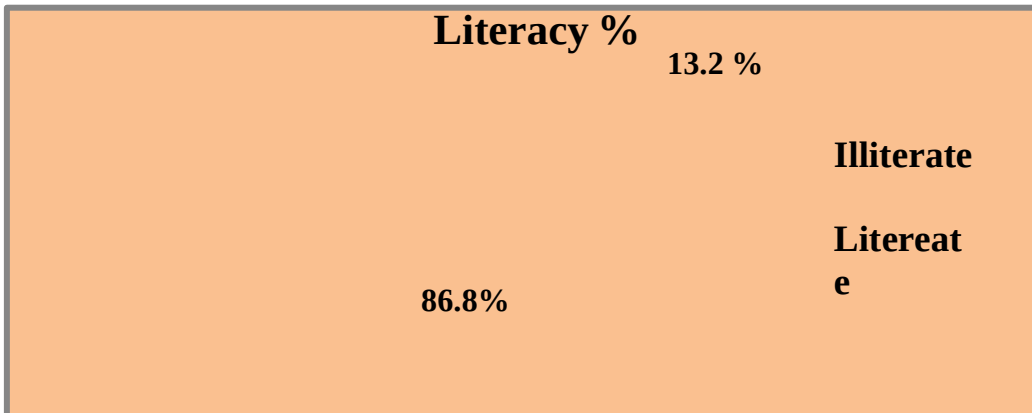


Fig.5 Crop wise area (Kharif Season) in sampled households (in percentage)

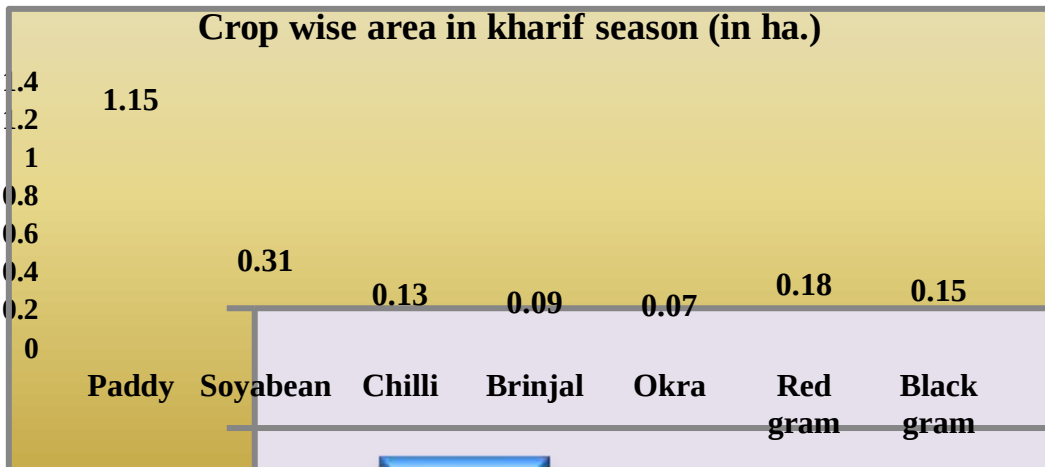


Fig.6 Crop wise area (Rabi Season) in sampled households (in percentage)

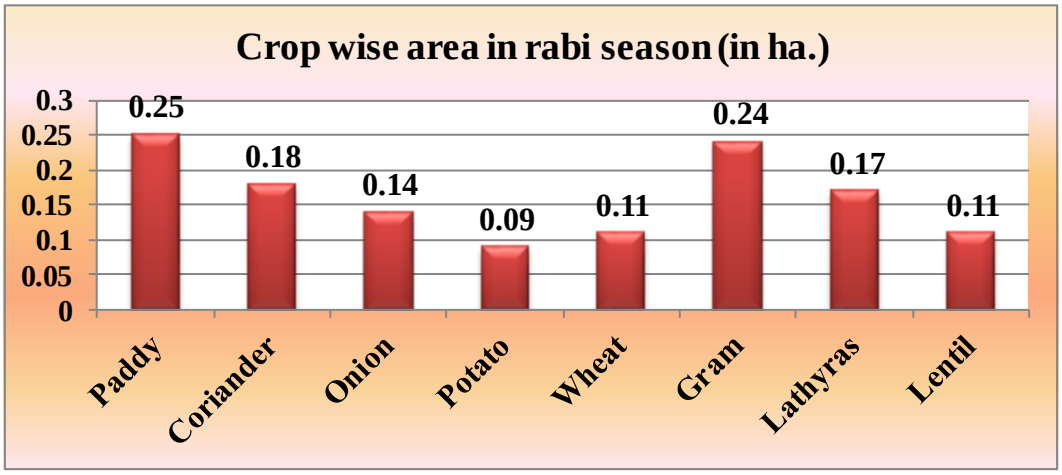


Fig.7 Cost of cultivation of coriander on the sample farms (Rs./ ha.)

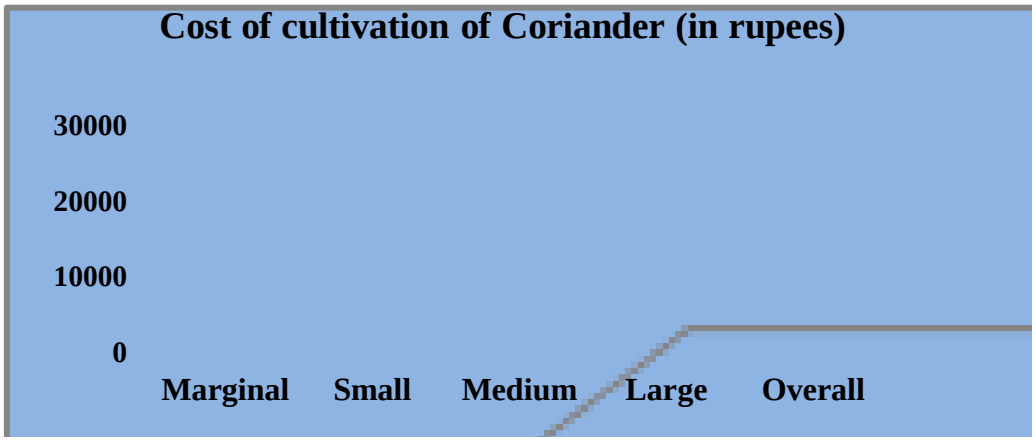


Fig.8 Cost of production of coriander on the sample farms (Rs./ ha.)

Fig.9 Yield of coriander (Quintal/ha.)

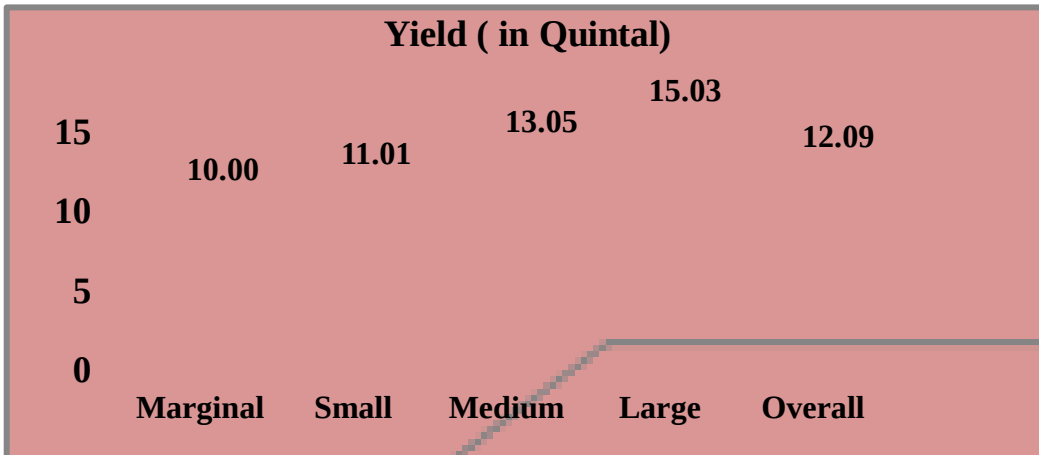


Fig.10 Cost and return of coriander on the sample farms (Rs./ha.)

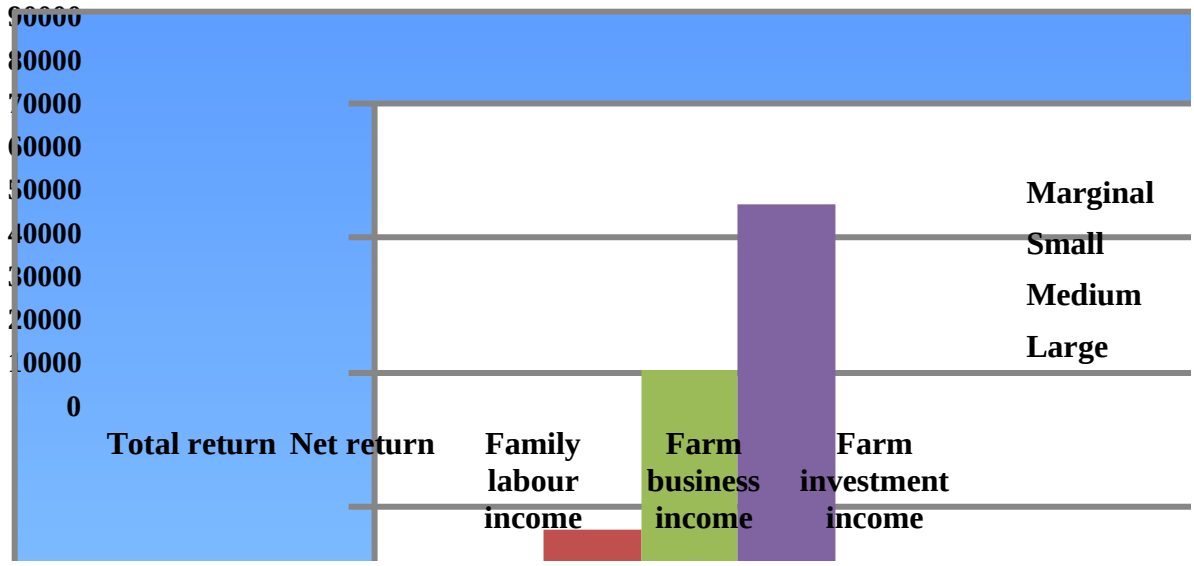
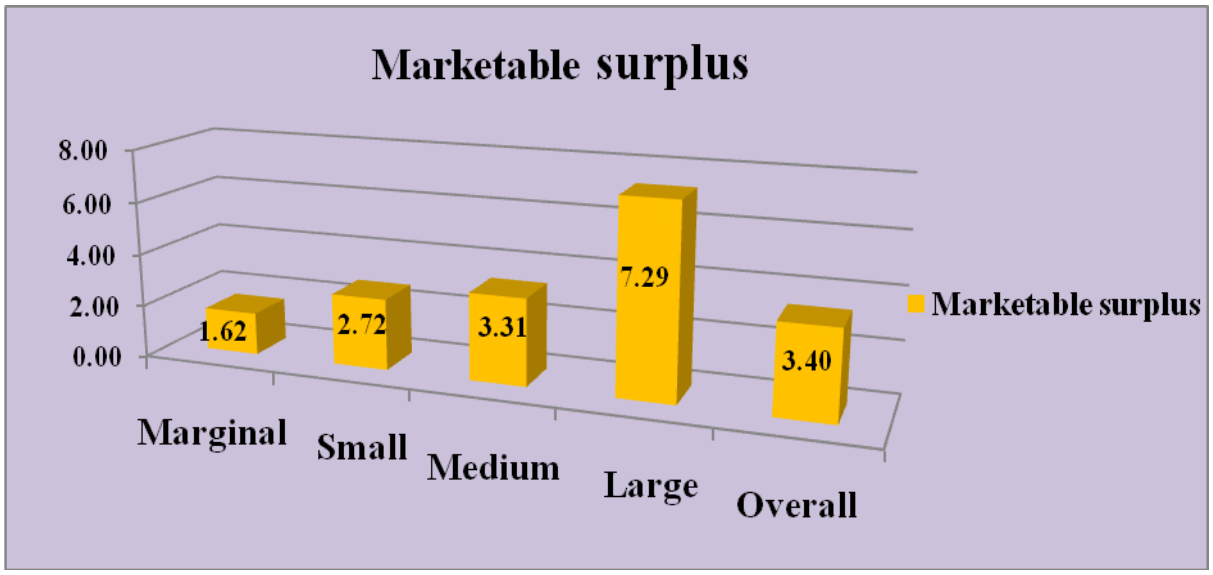


Fig.11 Marketable surplus of coriander of sampled households (Quintal/farm)



It decreased with the increased in the size of farm due to higher yields in return to the cost of cultivation on the large farm. The average value of production per hectare came to Rs. 64830.77. It was Rs. 52000.16, Rs. 58300.11, Rs. 70200.31 and Rs.82500.19 on marginal, small, medium and large farmer respectively. The higher value of output on large farms was associated with the higher yield.

Measure of farm profit

The values of net income, family labour income and farm business the per hectare the sample farms of different size groups have been worked out in the Table 5 and fig 10. The table indicates that, on an average the value of net average family labour income and farm business income per hectare came

Rs. 40433.07 and Rs. 4594.64, respectively, on the sample farms of different sizes. Overall an average the input-output ratio of coriander came to 1: 2.65 on the sample farms.

Marketable surplus

Coriander was not land to be damaged easily commodities as compare to other spices commodities. These can be stored at household level for a longer period with good storage capacity and farmer can sale in later period when the price is higher in the market. Table 6 and fig 11 clearly reveals that the estimated marketable surplus with marginal, small, medium, large farmers was 90.00, 85.00, 82.54, and 87.62 percent for coriander.

The area under coriander crop is increased in the size of holding. It was concluded that large farms in the marginal, small and medium farms which shows that as the area under coriander is increasing the per hectare cost of cultivation is decreasing. The average yield and gross returns per hectare increased with the increase in size of farms. The cultivation of coriander was labour intensive therefore it is a needed to bring mechanization in the production and post-harvest management of coriander. There is a need to organize the training programmes to increase the awareness among the farmers to use balanced doses of fertilizers and pesticides.

References

1. Sethi, K.L. 1981. Note on the scope for producing high-yielding synthesis in coriander. *Indian J. Agric. Sci. 51:52-53*
2. Srivastava, U.S. 1972. Effect of interaction of factors on wilt of coriander caused by *Fuserrium oxysporum schlecht* ex Fr. corianderii kulkarni, Nikam and Joshi. Indian J. Agric. Sci. 42: 618-620.
3. Suthanthirapandian, I.R., H.A. Shaw and S. Muthuswami. 1980. Genetic Veriability in coriander (*Coriandrum sativam L.*). Madras Agric. J.67:450:452.
4. Zohary, M. 1986. Pflanzen der Bibel (2nd edn). Clawer Verlag, Stuttgart, P.92.
5. Slimon, J.E. 1990. Essential oils and culinary herbs. Pp.472-483 in Advanced in New Crop Proceedings of the first national symposium, New crops: research, development economics. Indianapolis, Indiana, USA, 23-26 October 1988. (J. Janick and J.E. Simon, eds). Timber Press, Portland

How to cite this article:

Naresh Kumar and Vikrant Kumar. 2017. An Economic Analysis of Coriander Production in Mungeli District of Chhattisgarh State. *Int.J.Curr.Microbiol.App.Sci.* 6(12): 474-485.
doi: https://doi.org/10.20546/ijcmas.2017.612.058