



ECONOMIC VIABILITY OF CARDAMOM CULTIVATION IN KERALA

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ABSTRACT : Cardamom , the Queen of spices , deserves special attention in Kerala economy in recent times. It fetches a historical hike in its price ranging up to Rs.5000/ Kg for higher grade variety. There are mainly two factors on which the price and profitability of this crop depends; first the international production and the second is the climatic condition. Since the demand is seemed to be almost consistent, it is the conditions of supply that matter. The volatility in the price of cardamom negatively affects all its stakeholders mainly farmers, traders and exporters .As most of the cultivators in the field belongs to small and marginal category, the question here is whether they would be able to reap the benefit of the high price which hits the market. The study here made an attempt to examine economic viability of cardamom cultivator in Idukki district.

Keywords: Cardamom, economic viability, high yielding variety, Spices board

Introduction

Kerala is the major contributor of cardamom in India having a share of around 88 per cent in the total production. The other major producing states are Karnataka shares around 7 per cent production and Tamil Nadu about 4.1 per cent. Main Cardamom-growing areas in Kerala are Udumbanchola taluk, Peeremedu taluk Devikulam taluk of Idukki district. In Karnataka, Shimoga contributes the majority. Out of the global production of 40,000 tonnes in 2017-18 , 20650 tonnes belonged to India from 69,000 hectares.¹

Even though Indian cardamom enjoys a competitive advantage over its Guatemalan counterpart in the quality front, the high price it sometimes fetched would not reached to the original farmers. The peculiarity of the cardamom is domestic demand is almost equal to its domestic production. Festival seasons in other countries especially Gulf

¹ DPR of Cardamom (s), National Horticulture Board, 2017-18

countries under normal condition will fetch high price. Again, the North Indian domestic demand also will be high in religious festivals and celebrations. Demand is seemed to be stable except in unforeseen situation, it is the climatic condition in major producing countries affect price and thereby the profitability of the crop.

Significance of the study

High price volatility is very peculiar to cardamom crop. Supply conditions play a major role in this regard. Demand being more or less stable, it is the supply in the major producing countries decides the value of the crop in the national and international market. Climatic conditions, pest – fungi attacks, Fiscal and trade policies of the government are some of the important factors cause the volatility in the price and in turn determine the profitability and the future prospectus of the cardamom economy. The research and development activities undertaken both by the Spices Board and the farmers themselves give an impetuous to the amazing yields in the cardamom sector. From around 45kg/Ha in 1970s to 500 kg /Ha in the post 2000 period on an average is a big achievement . For some varieties like Njallani ,it fetches even the multiple of the above . The question here is that whether these advantage exerts a positive impact on the profitability of the crop and make the crop an economically viable one. This study made an attempt to analyses the problem mainly on farmer's perspective.

Objectives of the study

1. To assess the relationship between cardamom production cost, yield, and profit
2. To analyze the problem faced by cardamom farmers
3. To examine the role of the Spices Board in the cardamom economy
4. To measure the level of satisfaction of the farmers

Hypotheses of the study

1. There is a correlation between cost, yield and profit
2. There is significant difference between mean rank of the problems faced by the farmer
3. There is no significant difference between the mean rank towards the benefits received from spices board by the farmers.
4. The level of satisfaction among the farmers as regards the policies and support of the spices board, role of spices board, planting material cost, fertilizer cost, labour cost, other production cost, prices and price fluctuation is not equal to average.

Methodology of the study: This study has made use of both secondary and primary data. The secondary data is collected from relevant articles, journals, Government of India publications and Spices board publications. The primary data is collected from the 100 cardamom cultivators in Idukki district. For the convenience in data collection, multi-stage sampling technique was used.

Results and discussions :

Socio-demographic profile of the cardamom cultivators: The following table reveals the socio economic profile of the cardamom cultivators of the Idukki District.

Table:1: Socio-demographic profile of the cardamom cultivators

Particulars		Frequency	Percent
District	Idukki	80	80.00
	Wayanad	17	17.00
	Kasargod	3	3.00
Age	Below 40	40	40.00
	40-50	30	30.00
	Above 50	30	30.00
Educational Qualification	Primary	26	26.00
	Secondary	53	53.00
	Graduation	7	7.00
	No formal education	14	14.00
Occupation	Agriculture	100	100
Cardamom Area	Less than 5 acres	77	77.00
	5-10 Acres	19	19.00
	Above 10 acres	4	4.00
Nature of land holding	Patta land	100	100
Nature of cultivation	Mono Crop	81	81.00
	Mixed crop	19	19.00
Number of plants	less than 250	8	8.00
	250-500	92	92.00
Annual production in Kg	Less than 3000 kg	39	39.00
	3000-6000 kg	57	57.00
	Above 6000 kg	4	4.00
Annual Yield	less than 500 kg	25	25.00
	500-1000 kg	62	62.00
	1000-1500 kg	13	13.00
Annual cost	less than 2 lac	2	2.00
	2-4 lac	45	45.00
	4-6 lac	41	41.00
	above 6 lac	12	12.00
Annual profit	Less than 75000	25	25.00
	75000-150000	63	63.00
	Above 150000	12	12.00

Source: Primary Data

The profile of the respondents shows that majority of the farmers belong to the age group of below 40 years. Most of the of the farmers have secondary level education. All the respondents do agriculture as their major source of revenue. Most of the respondents cultivate cardamom in an area less than three acres. The nature of land holding of all the farmers is Patta land. Majority of the farmers have 250 to 500 plants in their land and get 3000 to 6000 kilograms of dried cardamom as yield per year. Majority incur two to four lakhs rupees as cardamom production cost per year. Most of the farmers earn Rs.75000 to Rs.150000 as annual profit.

Cardamom: Production Cost, Yield and Profit

In order to assess the relationship between cardamom production cost, yield, and profit, correlation analysis has been done. The hypothesis formulated in this respect and the test result is presented below.

Ho: There is no correlation between cost, yield and profit

Ha: There is a correlation between cost, yield and profit

Table : 2 :Correlation- Cost, Yield and Profit

	Cost	Yield	Profit
Cost	1	0.73**	-0.69**
Yield		1	0.86**
Profit			1

Source: Primary Data

Note: ** denotes correlation is significant at 1% level of significance

From the above table it is clear that the correlation coefficient between yield and cost is 0.73. It indicates that 73 percent positive relationship exists between yield and cost and the same is significant at one percent level. As cost increase by 100 percent (or by one unit) the yield will increase by 73 percent (or by 0.73 unit).

The correlation between cost and profit is -0.69. It means that 69 percent negative correlation is there between cost and profit. That is, one unit increase in cost will result into 0.69 unit reduction in profit and vice versa.

The correlation between yield and profit is 0.86. It means that 86 percent positive correlation exists between yield and profit. That is, one unit increase in yield will result into 0.86 unit increase in profit.

Cardamom: Annual trading, Income and Profit : In order to assess the relationship between annual cardamom trading, income and profit, correlation analysis has been calculated. The hypothesis formulated in this respect and the test result is presented below.

Ho: there is no correlation between cardamom trading, income and profit

Ha: there is a correlation between cardamom trading, income and profit

Table : 3 Correlation- Trading, Income and Profit.

	Trading	Income	Profit
Trading	1	0.83**	0.88**
Income		1	0.74**
Profit			1

Source: field survey

Note: ** denotes correlation is significant at 1% level of significance

The above table shows that the correlation coefficient between cardamom trading and income is 0.83. It means that 83 percent positive relationship exists between cardamom trading and income. The same is significant at one percent level of significance. One unit change in trading will result into 0.83 unit change in income.

The correlation between trading and profit is 0.88. It means that, there is 88 percent positive correlation between trading and profit. As one unit increase in trading will result into 0.88 unit increases in profit.

The correlation between income and profit is 0.74. It means that 74 percent positive correlation exists between income and profit. One unit increase in income will result into an increase of 0.74unit in profit.

Problems of Farmers :The problems of farmers are analysed by looking into 17 variables. The respondents were asked to give their responses about these 16 variables (problems) in a five point scale. Thereafter Friedman's test is applied to find out the most important problems faced by them. The hypothesis formulated in this respect and the test result is presented below:

Ho: There is no significant difference between mean rank of the problems faced by the farmers.

Ha: There is significant difference between mean rank of the problems faced by the farmers.

Table :4 :Problems of Farmers

Problems	Mean rank	Chi-square value	p-value
1) Volatility in cardamom prices (price fluctuations)	10.52	731.786	0.000
2) Depletion of ground water	6.64		
3) Tardy implementation of policies	10.76		
4) Speculative practices/ exploitation of traders	12.00		
5) Indifferent attitude of promotional agencies	3.26		
6) Unfavorable practices of the intermediaries	9.81		
7) Fluctuation in market demand	8.95		
8) Unavailability of an efficient marketing system	12.03		
9) High production costs	12.23		
10) Pest attack	11.86		
11) Land degradation	5.66		
12) Pesticide residue	8.23		
13) Creation of exportable surplus	7.77		
14) Stiff competition from other countries	12.26		
15) Illegal import to India	12.88		
16) Insufficient use of inputs	5.35		
17) Unscientific shift in cropping pattern	2.82		

Source: Field survey

From Table:4 it is clear that the most important problems faced by the farmers are i) illegal import of cardamom to India, ii) **Stiff competition from other countries** and iii) high productions costs. The p-value is less than 0.05. Hence the null hypothesis is rejected and concluded that the farmers differ in their opinion about the problems faced by them.

Level of satisfaction of farmers

An attempt was made to assess the level of satisfaction of the farmers as regards (i) policies and support of the spices board, (ii) role of spices board (iii)planting material cost(iv) fertilizer cost (v) labour cost (vi) other production

cost (vii) prices and (viii) price fluctuation. The hypothesis formulated in this regard and the test results are presented below:

Ho: The level of satisfaction among the farmers as regards the policies and support of the spices board, role of spices board, planting material cost, fertilizer cost, labour cost, other production cost, prices and price fluctuation is equal to average.

Ha: The level of satisfaction among the farmers as regards the policies and support of the spices board, role of spices board, planting material cost, fertilizer cost, labour cost, other production cost, prices and price fluctuation is not equal to average.

Table : 5 Level of satisfaction –farmers

Level of satisfaction (preset value=3)	Mean	Standard Deviation	t- value	p-value
Policies and support of the spices board	2.23	1.19	6.25	.000
Role played by the spices board	2.68	1.23	2.50	.014
Planting material cost	2.47	1.09	4.70	.000
Fertilizer cost	2.02	1.25	7.60	.000
Labour cost	1.62	.57	23.65	.000
Other production cost	1.60	.75	18.20	.000
Prices	2.22	1.09	6.94	.000
Price fluctuation	2.03	1.00	9.39	.000

Source: Primary Data

The above table exhibits that the p-value concerning all the variables is less than 0.05. Hence the null hypothesis is rejected and concluded that the level of satisfaction of the farmers is not equal to average. Based on the comparison of the mean value with the preset value it can be interpreted that the level of satisfaction of the farmers is less than average.

Role of Spices Board : The role of spices board is evaluated by looking into twenty nine variables grouped under six main variables. The six main variables are (i) product development, (ii) sustainable development, (iii) cost reduction, (iv) capacity building, (v) crop improvement and (iv) post-harvest operations. The respondents were asked to provide their responses in a five point scale. The responses were evaluated by applying one sample t-test.

The hypothesis formulated in this regard and the test results are as follows:

Ho: The role of the spices board as regards product development, sustainable development, cost reduction, capacity building, crop improvement and post-harvest operations is equal to average.

Ha: The role of the spices board as regards product development, sustainable development, cost reduction, capacity building, crop improvement and post-harvest operations is not equal to average.

Table:6 Role of Spices Board

Role of spices board	Preset value	Mean	Standard Deviation	t- value	p-value
Product Development	15	13.47	1.58	9.452	.000**
Sustainable Development	9	7.43	1.02	14.99	.000**
Cost Reduction	12	11.71	1.33	2.135	.035*
Capacity Building	18	15.46	1.75	14.14	.000**
Crop Improvement	21	21.78	1.67	1.302	.196
Post- harvest Operations	12	10.13	1.41	12.947	.000**

Source: Primary data

The p-value concerning the role of spices board as regards product development, sustainable development, cost reduction, capacity building and post-harvest operations is less than 0.05. Hence the null hypotheses concerning these variables are rejected. Based on the comparison of the mean value with the preset value it can be concluded that the role of the spices board concerning the above mentioned variables is less than average. The p-value of crop improvement is above 0.05. Hence it can be concluded that the role of spices board with regard to crop improvement is equal to average.

Most of the of the farmers have secondary level education. All the respondents do have agriculture as their major source of revenue. Most of the respondents cultivate cardamom in an area less than three acres. The nature of land holding of all the farmers is Patta land. Majority of the farmers have 250 to 500 plants in their land and get 3000 to 6000 kilograms of dried cardamom as yield per year. Majority incur two to four lakhs rupees as cardamom production cost per year. Most of the farmers earn Rs.75000 to Rs.150000 as annual profit.

There exists a positive relationship exists between yield and cost. As cost increases, the yield will also increases. There exists a negative correlation is there between cost and profit. That is an increase in cost will result in the reduction in profit and vice versa. There exists a positive correlation between yield and profit. That is increase in yield will result an increase in profit.

The most important problems faced by the farmers are i) illegal import of cardamom to India, ii) Stiff competition from other countries and iii) high productions costs.

As far as the policies and support of the Government, role of spices board, planting material cost, fertilizer cost, labour cost, other production cost, prices and price fluctuation, the level of satisfaction of the farmers is poor.

The role of the spices board as regards product development, sustainable development, cost reduction, capacity building, crop improvement and post-harvest operations is below average

Suggestions and conclusion

For majority of farmers under study depends on cardamom for their livelihood, and it is cultivated as mono crop, the Government should take the problems of the cultivators seriously. The support price should be announced in proper interval so as to combat the price volatility faced by the crop. Spices Board being the main outlet for the farmers to convey their concerns should take necessary steps to solve the crop related issues and Government should be cautious about the price volatility which may occurred due to competition, climatic change or smuggling.

So to reap the benefit of the robust figures in cardamom production with somewhat stable demand, the Government with Spices Board should take stringent measures to curb the illegal import, stiff competition. Research & Development of Spices Board put more effort to mitigate the negative impact of pest attack and collaborate with National weather department for taking necessary action to nullify the climatic impact on the crop.

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