



COVID-19 PANDEMIC: IMPACT ON CARDAMOM PLANTATIONS IN KERALA

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Abstract

This paper analyses the circumstances of cardamom cultivators and cultivations against the backdrop of COVID-19 pandemic in Kerala. As the cultivation of cardamom is highly labour intensive, the scarcity of labour force resulted in large scale decay of unplucked cardamom cloves in various plantations. The shortage of labour force also resulted in a drastic increase in labour cost for hand picking of cardamom cloves from the plants. This study focuses on unstructured interviews and conversations with large scale and small- scale planters, labourers, cardamom traders and people employed in commercial large scale drying of cardamom. The findings suggest that many cultivators organized various strategies to overcome the issues especially migrant labour crisis of employing unskilled labourers at a high cost, bringing migrant labourers from their hometowns in private buses at the expense of cultivators. Cardamom, called the queen of spices, proved worthy of its title when it fetched a record price in the market this year and brought good tidings to Kerala farmers who are otherwise affected by the vagaries of the weather. With the price hitting Rs 6,000/kg, cardamom growing areas saw people buying acres of farms and those who had turned to other crops returning to cultivate the green gold. Kerala's reputation as the land of spices goes back at least 3,000 years. Here, Express delves into the aromatic world of spices with a special focus on Kerala. With the outbreak of the Covid -19, the farmers and traders of cardamom started facing serious challenges in their sector. There was a tremendous change in this field. Because of the lockdown interstate trade as well as export of the spices including cardamom was at a standstill. There was serious fall in the prices of cardamom. The cost of production increased as there was shortage in labour. The auction centres were also closed.

Keywords: E-Auction , vagaries, legendary

Covid-19 : Impact on cardamom plantations in Kerala

Introduction

India is nicknamed as the home of spices. Indian spices have been a heart to Indian culture and also plays an important role in the country's civilization. Traditionally India was known as the legendary land of spices. A wide variety of spices are produced and traded in India. Among the varied spices, Cardamom plays a crucial role both in the national and international market. Cardamom is a spice that belongs to ginger family. It is considered to be one of the oldest spices. Cardamom is the world's third most expensive spice and is renowned as the Queen of spices. Cardamom is mostly used for flavouring in both food and drink and used even as a medicine. Kerala is the largest producer of small cardamom in India. The territorial spread of cultivation of small cardamom or *Elettaria cardamom* in Kerala is confined to Idukki, Wayanad and Palakkad districts. The cardamom hills of Idukki district produce the major share of the cardamom in markets of Kerala. It is about 90 percent of total cardamom production in India. There are two types of cardamom : Black cardamom (large) and green cardamom (small). This study attempts to highlights the impact in the cardamom hills of Idukki district against the backdrop of COVID-19 pandemic lockdown. This study is based on a descriptive research design and reviewed previous works related to cardamom cultivation in Idukki district. Also, this research paper is based on the unstructured interviews among planters, local traders, and workers of cardamom dyers to know the experiences of individuals engaged in the production process of cardamom during the pandemic crisis.

Cardamom is one of the severely affected crops due to the lockdown. The regular nature of plant protection operations and the 6-8 rounds of harvesting cycles practiced in the crop means that any prolonged period of disruption in input supply chains, including that of labour supply, would adversely affect the crop. The limitations imposed on labour use and restrictions on movement severely curtailed normal operations in the crop in the major production zone, Idukki. More than 13 per cent of the total small cardamom area and production in the country is concentrated in Idukki District. Presently, the ongoing crop operations in cardamom include irrigation and other farm operations. At present the crop loss is reported to be marginal. Though harvesting is reported to be mostly over in the cardamom plantations, reports suggest that last-stage harvesting is still pending in some cases. Harvest of cardamom in Kerala is undertaken by migrant workers from Tamil Nadu. As the Kerala-Tamil Nadu border was sealed during the lockdown, these workers were not available for harvesting. Considering that cardamom is a non-perishable crop, the

loss due to non-harvesting of small cardamom owing to shortage of manpower may be worked out at a minimum of about 10 kg per ha. Accordingly, the total estimated crop loss during the season may be about 300 MT. Further, auctions were stopped after mid-March 2020 when there was a sharp drop in prices by about Rs 1,000 per kg. More than 90 per cent of the cardamom production in the State is sold through the e-auction centres. As a result, stock has accumulated and weekly payments are not received by cardamom growers. No trading happens in cardamom now. Data on e-auctions from the Spices Board indicate that if 2,861 MT of cardamom was traded by planters and dealers in March and April of 2019, the corresponding amount for 2020 was 588 MT. The value of trade at the e auctions fell from Rs 461 crore in March and April of 2019 to Rs 239 crore in March and April of 2020 (this was partly due to a price rise from Rs 1,813 per kg in April 2019 to Rs 2,667 per kg in April 2020, and not a reflection of quantities). The farmers are holding stocks without an effective means of sale. The global demand for spices has not declined, but global supply chains are affected. Export orders for cardamom to the Gulf region for the Ramadan season beginning from April 21 have been postponed or cancelled. The closure of the upcountry markets like Delhi and Mumbai also led to fall in sales of cardamom. The crop loss is expected to reach up to 30 per cent of the normal harvest during the months of March and April. It is estimated that about 200 MT of stock per week is stuck with farmers, amounting to around 800 MT of cardamom for a month, valued at about Rs 180 crore. Losses in Kerala may amount to about Rs 126crore.

Review of literature

V Sajeew Kumar(2020), in his journal titled “ Spices board mulls using e-NAM portal for cardamom sales”, stated that in order to deteriorate issues in the marketing of cardamom, spices board introduced an online mechanism named e-Nam. It doesnot require the physical presence of buyers. Nationwide lockdown during the severe pandemic has affected the trading. Also he states that , the board has taken a series of measures to support the cardamom planters from the vagaries of Covid 19 crisis. Initially the mechanism was introduced on a pilot basis at spices park in Puttady in association with Kerala Agricultural department.

R R Kattel, M D Sharma et. al, (2020), in their journal on “ Factors affecting adoption of improved method in large cardamom curing and drying in the eastern Himalaya”, suggested that most of the institutions are giving both financial and non financial support for large cardamom in its curing and drying process.

Spices Board (2020), in their paper titled “India’s Spices Board to support

cardamom growers” states that the India’s Spices Board will provide financial support for replantation of cardamom in the three cardamom growing states of Kerala, Karnataka and Tamil Nadu. The replantation support will be extended in two annual instalments.

Cardamom growers owning up to four hectares in Kerala and Tamil Nadu will qualify for a financial package of Rs17,780 (\$414.50) as first instalment and Rs17,036 as second instalment. Farmers owning above four hectares but up to eight hectares will receive Rs13,470 as first instalment and Rs12,950 as second instalment. For the rejuvenation of cardamom plantations, the Spices Board will disburse Rs13,300 per hectare as a single instalment to cardamom growers owning up to four hectares in the states of Kerala and Tamil Nadu. The Spices Board is also providing financial aid for setting up irrigation facilities, soil conservation and for cardamom curing as well as technical advice to cardamom growers.

Research Gap

Most of the studies have concentrated on cardamom production and marketing in a particular geographical area. No attempts have been made to study the impact of Covid 19 pandemic in the cardamom plantation in Kerala. Hence the present study.

Scope of the Paper

This study shows the “ Impact of Covid 19 pandemic in the cardamom plantations in Kerala”. This analysis is made through the data collected mainly from cardamom planters (small and large) and from the cardamom traders in Idukki district. Also similar data are collected from Spices board and from such other institutions.

Objectives of the study

The objectives of this study are as follows:

- 1 To study the impact of Covid 19 pandemic on cardamom plantations in Kerala.
- 2 To know the threats and challenges faced by the cardamom sector in the national and global market.

Methodology of the study

The data for this study is taken from primary source and secondary sources. Unstructured interviews were conducted among the cultivators , traders and labourers of cardamom plantations to scientifically investigate the impact of severe pandemic crisis. The sampling universe of this study includes cardamom planta-

tion cultivators, labourers, supervisors, traders, commercial cardamom dryers and local cardamom traders of Idukki District. Following the safety measures during the pandemic, conversations with respondents were recorded by note-taking. The photographs were taken in the field with the consent of participants. A descriptive analysis approach is selected for the study. Secondary data were collected from the publications of Spices Board of India, reports and magazines of the Government. Statistical tools such as averages and percentages were used in this study.

Results and Discussions

Data needed for the study are collected for the period 2014-2020.

Challenges faced by the cardamom planters and traders as a result of Covid- 19 are :

(i) Immense fall in the cardamom price

Before the lockdown in March 2020, the average price of cardamom was quoted as Rs.3300/kg. Later the average price for the same has dropped to Rs.1150/kg. With in a week, price dropped by Rs.1000/kg. Covid19 pandemic immensely affected the auction price. Auction centres had remained closed for long period. After its reopening, average price again fell down. Many of the small scale cardamom planters were compelled to sell their cardamom at low prices incurring huge loss. In August 2019, maximum price of cardamom was at Rs.7000/kg. The lower price realisation has led to panic selling.

(ii) Hit cardamom Traders

Covid 19 immensely hit the small scale as well as large scale cardamom traders, who purchased bulk quantities of cardamom from planters and farmers, expecting hike in price. Unfortunately, the average price for the same got reduced to a great extent. They incurred huge loss. Bulk quantity of cardamom stock remained unsold at their warehouses due to shut down of auction centres, low demand and low price. Above all, the cardamom in the warehouses is getting damaged day by day. Now, traders have stopped purchasing cardamom from planters and farmers. It negatively affects the farmers and planters

(iii) Storage problems

Due to shutting down of auction centres at Puttady and at Bodynaikkannoor , tonnes of cardamom stocks remained unsold in the warehouses. Exporting of cardamom were hindered. Traders who bought cardamom in bulk quantities from planters expecting rise in price, suffered with accumulation of cardamom at warehouses. A large amount of capital got blocked as stock. They are trying to sell

their cardamom even at a price much lower than the marginal price, which bears loss. Also huge quantities of cardamom were deteriorated due to storage over long period of time. And traders are compelled to sell the old stock which belongs to last year. But a pale yellow colour in the stock downgrades its quality.

(iv) Issues with related to transportation

Another major consequence that affected cardamom sector is with regard to transportation. Since there exists lockdown and restrictions with regards to inter-state mobility, a huge number of traders and businessmen from Tamil Nadu were unable to travel to Kerala for participating in auction.

(v) Shutting down of Auction centres

Nowadays, marketing of cardamom is conducted through auction centres. Auction centres are located at Puttady and Boudynaikkannoor in Kerala. When lockdown was announced in the country, auctions were suspended. So the movement of cardamom from Idukki district has been stopped. Eventhough the traders purchased and stored huge amount of cardamom from planters, they were unable to sell the same to wholesalers through auction.

(vi) Lack of export

Idukki is considered to be the main producer and exporter of cardamom. It is the major source of earning foreign income. Covid 19 has severely affected the export of the same to Gulf nations. When the pandemic started spreading across the world, the Gulf countries temporarily suspended cardamom import especially from Kerala. As a result, Kerala lost many export orders .Thus inflow of foreign currency got declined.

(vii) Increased labour cost and production cost

Tremendous spreading of pandemic affected the availability of labour during the harvest season. Nationwide lockdown insists strict restriction on mobility of labour inputs from one place to another. Social distancing also negatively affected the availability of labour on time. There exists restrictions with regard to number of workers. Labourers started to claim increased wages, travelling expense and other benefits. Timely availability of workforce is an unavoidable factor. Along with increased labour cost, overall production cost got increased

(viii) Labour crisis

The cultivation of cardamom is labour intensive .Since cardamom plants are grown on the slopes of mountains, it requires everyday irrigation during summer

season (January to May). The workers water the plants with water pumped by diesel motor from streams or well by using hoses or by operating sprinklers. The workers weed the plantation at least thrice a year and maintain a compost pit in the middle of every four cardamom plants. In summer, weeds plucked by workers are used to cover the bottom parts of the plants that lie above the soil to protect new buds from the summer heat. In summer months, managers allot specific areas of a plantation to each migrant worker for manual tilling of topsoil with shovels, picks and hoe. The large-scale manual tilling aerates the soil and benefits manual irrigation and manuring.

The COVID-19 pandemic outbreak in the early months of 2020, resulted in the government of India declaring nation-wide lockdown on 24th March 2020. The enforcement of COVID-19 protocol resulted in the suspension of all activities in plantations of cardamom hills. The initial months of lockdown witnessed the mass departure of migrant workers from cities like Delhi, where workers travelled for days on foot to reach their homes. In Kerala, the enforcement of lockdown was so strict that workers could not assemble on the streets because of frequent police patrols. Later, the negotiations between the government of Kerala and central government resulted in arranging railway transportation for migrant workers. The strict lockdown resulted in bewildering most of the medium and large plantations up till the onset of COVID-19 unlock protocol on 8th June 2020.

The days of strict lockdown coincided with the months of monsoon in Kerala. Therefore, the planters managed without regular irrigation as rains provided necessary water for the plants.. Since there were very few or no migrant workers to perform large scale harvest, the first harvest was delayed in most medium and large plantations.

For some years, the daily wage of migrant workers are around three hundred rupees, and permanent workers are paid five hundred rupees. But the temporary Tamil workers are paid five hundred and fifty for each person. Most of the temporary Tamil workers are unskilled, and there lacked necessary less time to train them for carefully pluck ripened cardamom cloves from the plants. The heavy rains and lack of labour force for weeding resulted in the decay of several plants in various plantations. Similarly, the difficulty in spraying pesticides resulted in cardamom cloves developing rough texture due to pest infest.

Table 1 : Area of Cultivation, and Production of small cardamom in India (in hectare)

State	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Kerala	39730	39680	39080	39080	38882	38796
Karnataka	25080	25240	25117	25135	25135	25137
Tamil Nadu	5160	5160	5160	5115	5115	5110
Total	69970	70080	69367	69330	69132	69043

Source: Spices Board of India Publications compiled data

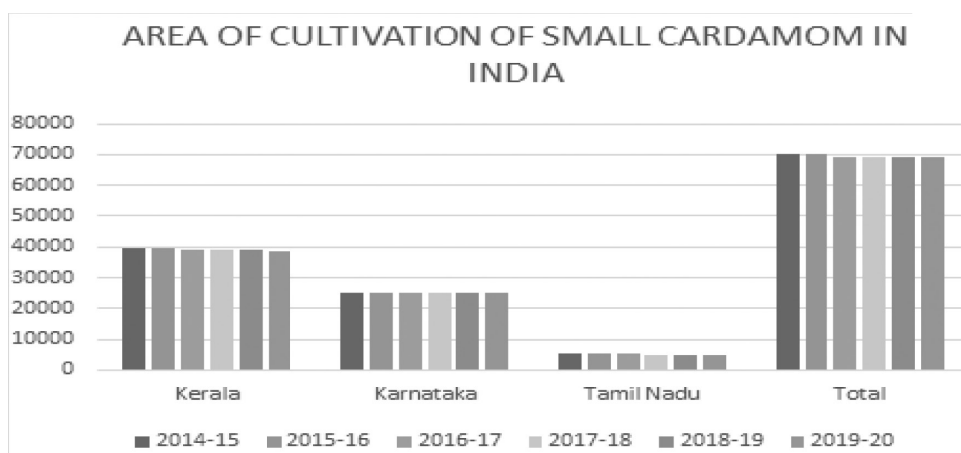


Figure 1

Area of Cultivation, and Production of small cardamom in India (in hectare)

Source : Table 1

India – the home land of spices, is the major producers of small cardamom second to Guatemala. In India Kerala, Karnataka and Tamilnadu are the major producers of green cardamom. The statewise area of cultivation of small cardamom in India is given in Table 1. Table 1 shows that, the area of cultivation of small cardamom remains static and constant throughout the years under study. A small fluctuation in the area is due to adverse climatic conditions such as flood.

Table 2 : Statewise production of small cardamom in India (in tonnes)

State	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Kerala	19500	21503	15650	18350	11535	9650
Karnataka	1500	1437	1449	1450	690	690
Tamil Nadu	1000	950	891	850	715	710
Total	2200	23840	17990	20660	12940	11050

Source: Spices Board of India Publications compiled data

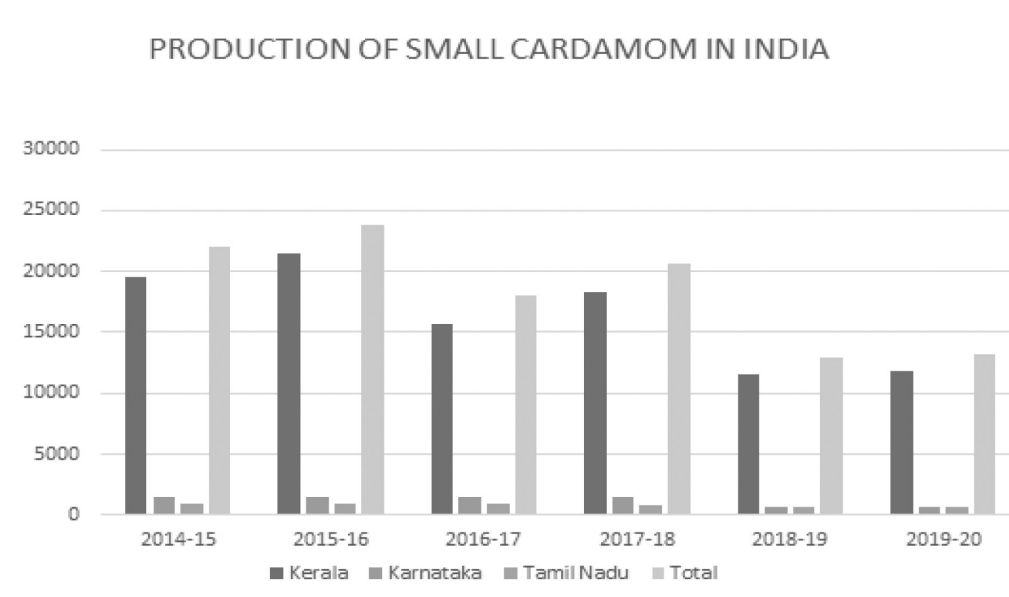


Figure 2

Production of Small Cardamom in India

Source :Table 2

Table 2 shows that statewise production of small cardamom in India. Among the three states, Kerala accounts major portion in terms of production. The production shows wide fluctuation under the period of study. The main fall in the production in Kerala is due to impact of flood and immense lockdown due to pandem-

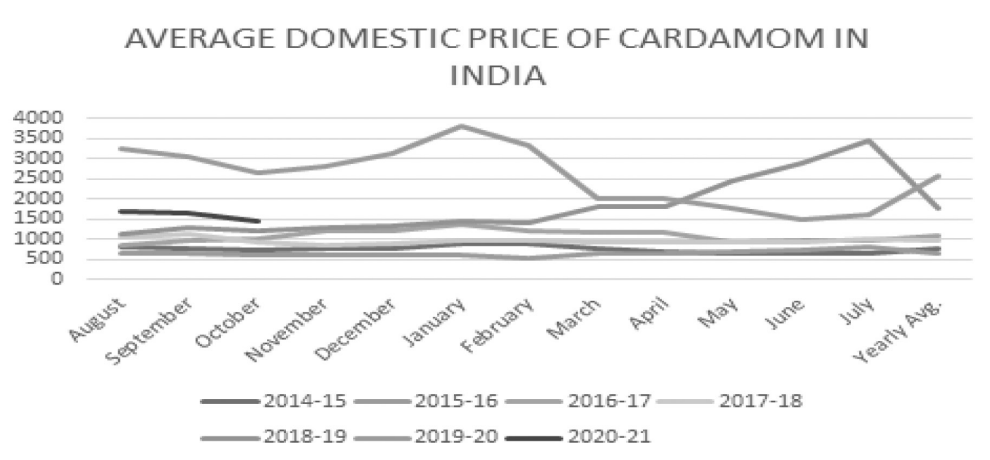
ic situation. Lack of availability of sufficient labourers from nearby states during cardamom plucking season adversely affects the cardamom production. It has serious implications on the income of cardamom planters .

Table 3: Average domestic price of small cardamom in India

Month	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
August	817	634	841	1064	1132	3251	1687
September	773	657	956	1144	1271	3040	1634
October	737	610	1011	931	1197	2652	1462
November	757	610	1221	837	1300	2803	
December	776	595	1197	908	1317	3125	
January	875	598	1351	968	1432	3802	
February	873	544	1198	952	1398	3313	
March	771	638	1154	915	1813	2000	
April	708	638	1154	915	1812	2000	
May	663	697	929	927	2442	1770	
June	663	743	957	914	2873	1477	
July	637	793	957	1022	3436	1619	
Yearly Avg.	754	647	1077	958	1785	2571	1594

Source : Spices Board of India Publications

Figure 3: Average domestic price of cardamom in India



Source : Table 3

Table 4 : Covariance

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
2014-15	1						
2015-16	-3811.30178	1					
2016-17	5444.207101	-5460.15	1				
2017-18	791.3727811	1002.349	-5506.47	1			
2018-19	-38011.8817	38645.74	-33547.7	-2539.17	1		
2019-20	46222.69231	-35005.5	44655.62	13104.46	-395839	1	
2020-21	2947.111111	1362.778	-5978.33	6924.556	-1029.33	23632.67	

Table 5 :Correlation

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
2014-15	1						
2015-16	-0.84285	1					
2016-17	0.535796	-0.60852	1				
2017-18	0.146057	0.209493	-0.51217	1			
2018-19	-0.77497	0.892229	-0.34469	-0.04893	1		
2019-20	0.912619	-0.78267	0.444333	0.244528	-0.81593	1	
2020-21	0.937982	0.739444	-0.87884	0.820705	-0.18873	0.991897	1

Table 6:Anova

Anova: Single Factor						
SUMMARY						
<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>		
2014-15	13	9804	754.1538	5547.474		
2015-16	13	8404	646.4615	4325.936		
2016-17	13	14003	1077.154	21842.31		
2017-18	13	12455	958.0769	6210.744		
2018-19	13	23208	1785.231	508973.5		
2019-20	13	33423	2571	542700.8		

2020-21	3	4783	1594.333	13836.33		
ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	35905174	6	5984196	33.79642	2.57 E - 19	2.223826
Within Groups	13102883	74	177066			
Total	49008057	80				

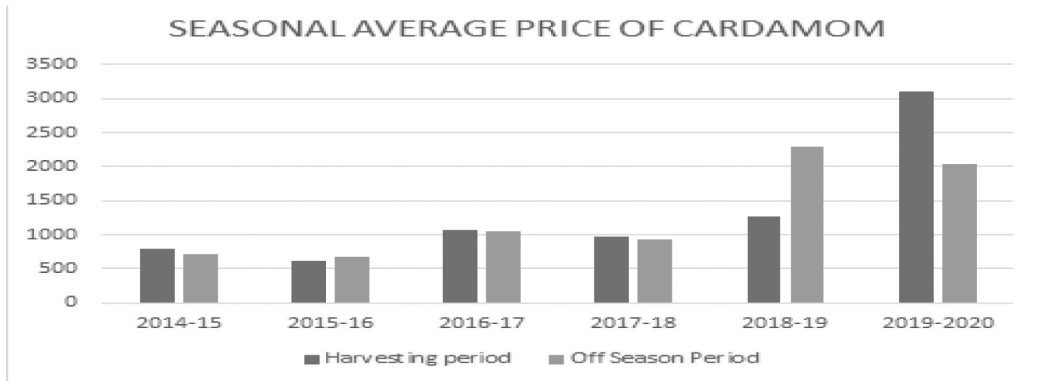
The table 6 shows the output of the ANOVA stating whether there is a statistically significant difference between the group means. There are two modes of marketing cardamom. i.e, through direct selling and through E- auction. The market price of cardamom is influenced by the auction prices which is subject to wide fluctuations. From the table 6, it is evident that the significant value is 2.57(p= 2.57), which is above 0.05 and therefore there is no statistically significant difference .

Table 4 : Seasonal Average Price of Cardamom

Year	Harvesting period	Off Season Period
2014-15	789	719
2015-16	617	675
2016-17	1069	1058
2017-18	975	940
2018-19	1274	2295
2019-2020	3112	2044

Source : Spices Board of India Publications

Figure 4 : Seasonal Average Price of Cardamom



Source : Table 4

Table 5 :Descriptive Statistics – Harvesting Period

Mean	1306
Standard Error	372.84
Median	1022
Standard Deviation	913.28
Sample Variance	834080
Kurtosis	4.77
Skewness	2.12
Range	2495
Minimum	617
Maximum	3112
Sum	7836
Count	6

Table 6 :Descriptive Statistics – Off season Period

Mean	1402.4
Standard Error	321.71
Median	1058
Standard Deviation	719.36
Sample Variance	517480.3
Kurtosis	-2.66
Skewness	0.50

Range	1620
Minimum	675
Maximum	2295
Sum	7012
Count	5

From the tables 5 and 6, there are two variables under study. Average prices of cardamom during harvesting season and off season. In both the cases, mean is greater than the standard deviation indicating good results. Also it is evident from the tables that the average price obtained for cardamom in the harvesting season and off season was not the same. The year 2019-2020 has an exception due to the impact of Covid 19 pandemic.

Table 7: Socio- Demographic profile of cardamom planters in Idukki district (sample=100) 2020 data

Age of the respondents	Below 40	40	40%
	40-50	30	30%
	Above 50	30	30%
Cardamom Area	Less than 5 Acres	77	77%
	5-10 Acres	19	19%
	Above 10 Acres	4	4%
Annual Production	Less than 3000 kg	39	39%
	3000-6000 kg	57	57%
	Above 6000kg	4	4%
Annual Yield	Less than 500 kg	25	25%
	500-1000 kg	62	62%
	1000-1500 kg	13	13%
Annual Cost	Lessthan 2 lakhs	2	2%
	2- 4 lakhs	45	45%
	4-6 lakhs	41	41%
	Above 6 lakhs	12	12%
Annual Profit	Less than 75000	25	25%
	75000-150000	63	63%
	Above 1,50,000	12	12%

Impact of Covid pandemic	(1)		
	Volatility in the cardamom price	40	40%
	(2) Hike in the cost	15	15%
	(3) Labour crisis	15	15%
	(4) Lack of export	30	30%

Source : Primary data

Table 8 : Descriptive Statistics

Mean	30
Standard Error	4.48
Median	27.5
Mode	30
Standard Deviation	21.01
Sample Variance	441.52
Kurtosis	-0.34
Skewness	0.66
Range	75
Minimum	2
Maximum	77
Sum	660
Count	22

Findings and Suggestions

The study made among the cardamom cultivators and traders among Idukki district found that, neither the Government of India nor Government of the State of Kerala has so far offered Minimum Support Price (MSP) for cardamom crops. In most cases, the cost of production is much higher than the value of output. Increased labour costs and expenses of fertilizers and pesticides, together with the decrease in the price of cardamom, reduce the annual profit of planters. Many of the planters took loan from banks and other institutions for making investment in the sector. Despite lockdown, a kilogram of first quality cardamom in a retail shop costs around four thousand rupees; meanwhile, the average price at an auction turns out as thousand five hundred rupees per kilogram. The local buyers offer less than the average auction price for the planters.

Most of the planters avoid taking the risk of replanting with unskilled labour who emerged out of situations created by COVID-19 pandemic lockdown. Also started to leave the sector. Government organisations, NGO's, banks, spices board, spices park, banks and other institutions can uplift the cardamom planters and traders from this severe pandemic.

Conclusion

Ultimate result of the severe pandemic situation is vanishing of green high quality cardamom. Failure to hire adequate number of workers, inadequate transportation, increased cost of production, decreased demand, decreased price, all culminated in the disappointment of planters. So it damages the fertility of the soil and decreased productivity. Quantity of cardamom available is much lower than that of before. Grade and quality thus affected.

The global hindrance in the economy due to the COVID-19 pandemic resulted in fall in the price of cardamom. Constraints forced many cardamom planters to sell their cardamom at a much lower price to the local buyers, even though the planters might not get back the expenditure incurred by selling at low prices in the auction. But, the small-scale farmers sell the crop to local buyers for less than the average price. Many large-scale planters decided not to sell their product as the market is non-profitable. Despite drying and processing of tons of cardamom this year the planters are yet to pay for their services.

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