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Economics of marketing pattern of large cardamom: A study in Anjaw district of Arunachal Pradesh

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ABSTRACT

Anjaw district of Arunachal Pradesh is one of the major producers of large cardamom on accounts of its suitable climatic conditions. The study was conducted to realize the marketing pattern of large cardamom and their associated constraints. Primary data were collected using well structured pre-tested schedule through personal interview method during December 2021 to January, 2022 from 120 respondents from four blocks of the district which were randomly selected. Study revealed that for marginal farmers, channel I was found to dispose the highest percentage of the produces with 58.92 percent in case of with calyx while for without calyx channel II showed maximum percentage of sell with 37.41 percent. Same is the case for small farmers where maximum of the produces was transacted through channel I both for with calyx at 47.22 percent and without calyx at 57.14 percent. For medium farmers also channel I indicated the highest percentage of disposal with 45.29 percent for with calyx and 79.23 percent for without calyx. The marketing efficiency and producer's surplus was found to be highest in channel III as compared to other channels. High transportation cost witnessed the major constraints faced by the large cardamom growers in the district.

1. Introduction

Spices are aromatic or pungent vegetables substances used for flavouring food and have several medicinal properties. Spices are valued for medicinal properties for example antioxidant properties of turmeric, anti-obesity properties of ginger. Even some spices like turmeric, saffron etc are used as natural colouring in food industry. Spices are also good source of mineral and vitamins. Hence, spices become integral part of our daily diets. India, considered as the "land of spices", is the major spice producing and exporting country of the world, contributing about 20-25 percent of the world trade in spices. The present annual production of spices in India is about 5.1 mt from an area of 3.5 mha and still continues to be the largest producer, consumer, and exporter of spices in the world and had a virtual dominance in the international spices trade across the globe. During 2019-20, the export of spices has also crossed the fixed target in terms of both volume and value (Spice Board, 2020). Also, the export of large cardamom, ginger, coriander, cumin, fenugreek and other spice seeds have increased in both the volume and value.

The North East Region of India has an immense opportunity when it comes in the arena of horticulture. Blessed with diversified agro-climatic conditions, the region has a wide range of feasibility for growing of major spices like large cardamom, ginger, turmeric, black pepper, bay leafs etc. Anjaw district of Arunachal Pradesh is one of the major producers of large cardamom on accounts of its suitable climatic conditions and it has been a major source of livelihood of Mishmi tribe of the district. Moreover, large cardamom is also one of the major spice crops that possess both the competitive and comparative advantages and occupied a major platform in the international market as well. During the 2010-11, the Anjaw district has produced 150 metric tonnes of large cardamom fetching a turnover of ₹12 crores (The Economics Times, 2013). However, since last 4

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to 5 years, the production of large cardamom in the district was not upto the mark as the production was declined to 64.52 percent and in 2019-20, the production of large cardamom in the district stood at 1625.60 MT with an area of 1961.25 hectares. Out of the four block in the district (Hayuliang-Goiliang, Chaglagam, Manchal and Hawai-Walong), Chaglagam Block which is generally known as Dalai valley is the only area which contributes about 70-75 percent of the total production in the district. The highest price of large cardamom in the district ranges from Rs. 1000 to 1420 per kg during 2012 but due to covid-19 pandemic the price went down steeply to Rs. 280-320 per kg during 2019-20. At present, the price of large cardamom in the district ranges from Rs. 420 to 580 per kg based on different varieties. In view of the existing pattern of marketing of this valuable spice crop, an attempt has been made to explore the cost of marketing, margin, price spread and efficiency of marketing and its associated constraints.

2. Methodology

Among the large cardamom growing districts of Arunachal Pradesh, Anjaw district stood at top in terms of cultivated area and production accounting for 34.09 percent and 33.80 percent (Sanjeeb *et al*., 2018). The district was selected for the study purpose based on the existing scenario of production of large cardamom. To acquire the objectives of the study primary data were collected from cardamom growers using well structured pre-tested schedule through personal interview method and Focus Group Discussion (FGD) with the farmers, local leaders, Goan Bura, officials from district Horticulture Department, stakeholders, extension functionaries and other agencies during the peak harvesting season i.e. from October last week to January middle week to arrive at the desired results of the study.

Data were collected from four blocks of the district namely Hayuliang-Goiliang, Chaglagam, Manchal and Hawai-Walong. From each block, 8 villages were randomly selected and from each village 15 respondents were selected randomly making a total of 120 respondents. Again 20 market intermediaries were selected randomly from Hayuliang market, Tezu and Tinsukia to know the different marketing cost and margin. Estimation of marketing cost, margin efficiency was done differently for with calyx and without calyx as different prices is charge by the producers as well as market intermediaries.

Marketing cost

Marketing cost is the cost involved in moving the production from the point of production to the point of consumption, *i.e*., the cost of performing the various marketing functions and of operating various agencies. The following formula was used.

$$T_c = P_c + \sum M_{ei}$$

Where, T_c = Total cost of marketing

P_c = Cost paid by the producer in the marketing of the produce.

M_{ei} = Cost incurred by the i^{th} middlemen

Marketing margin

Marketing margin is the difference between the total payments (cost plus purchase price) and total receipt (sale price) of the middleman. This is calculated by using the following formula

$$A_{mi} = P_{Ri} - (P_{Pi} + C_{mi})$$

Where,

A_{mi} = Absolute marketing margin of i^{th} middlemen.

P_{Ri} = Total value of receipts per unit.

P_{Pi} = Purchase value per unit.

C_{mi} = Cost incurred on marketing per unit.

Producer's share in consumer's rupee

Producer's share in consumer's rupee refers to the share of producer in the consumer's rupee. There is a positive relation between producer's share and marketing efficiency. Higher the producer's share greater would be the marketing efficiency or vice versa. It also specifies the price received by the producer and is indicated in terms of percentage of rupee paid by the consumers. It is estimated using the formula

$$P_s = \frac{P_f}{P_r} \times 100$$

Where, P_s = Price Spread.

P_f = Price received by the farmer per unit of output.

P_r = Retail price per unit of output (₹/ box or bag) and

Price spread

It is defined as the difference between the price paid by consumer and the price received by the producer for an equivalent quantity of farm produce. It is calculated by using the following formula

$$P_f = P_A - C_F$$

Where, P_f = Net price received by producer (₹/Rs)

P_A = Weighted average price received by producer (₹/Rs)

C_F = Marketing cost incurred by producer (₹/Rs)

Marketing efficiency

Marketing efficiency is the ratio of marketing output to marketing input. If the ratio increases, it represents

improved efficiency and a decrease denotes reduced efficiency. It was calculated by using Acharya's Modified marketing efficiency method which was given as

$$E = \left(\frac{O}{I}\right) \times 100$$

Where,

E = Index of marketing efficiency

O = Value added by the marketing system

I = 'Cost + margin' of marketing intermediaries

Acharya's modified marketing efficiency (MME)

$$MME = \frac{FP}{(MC + MM)}$$

Where,

MME = modified measure of marketing efficiency

FP = price received by farmers

MC = marketing cost

MM = marketing margin

Identification of constraints

To find the most significant factor influencing the sample farmers for cultivation of ginger, turmeric and large cardamom, Garrett's Ranking Technique was employed. According to this method, respondents have been asked to assign the rank for all factors and the outcomes of such ranking have been converted into score value with the help of the following.

$$\text{Percentage Score} = \frac{100\ (Rij - 0.5)}{Nij}$$

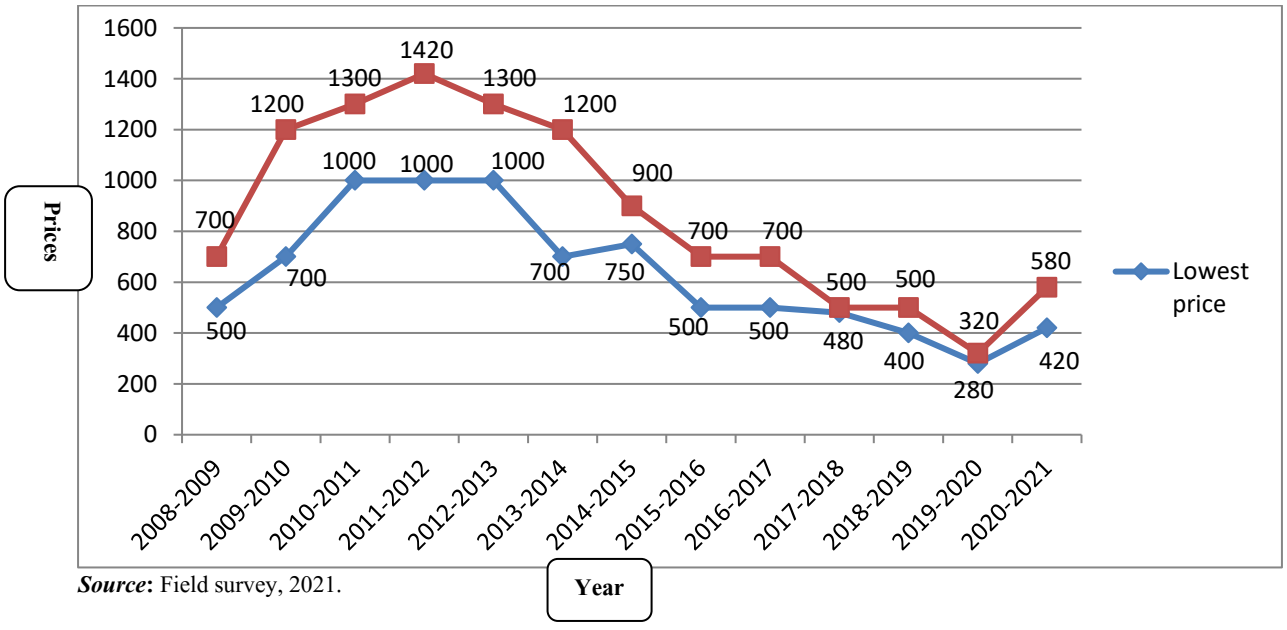
Where,

R_{ij} =Rank given for ith item j^{th} individual

N_j = Number of items ranked by j^{th} individual.

Brief scenario of marketing pattern of large cardamom in the district.

The marketing system of large cardamom in the district is primarily dominated by the middlemen. Generally, farmers find difficulties in disposing of their produces due to lack of availability of transport system and poor road conditions. It is a well known fact that cultivation of large cardamom in the district is done at an altitude range of 1500-2200 msl and growers have to travel 3-4 hours from cultivation field to residential house after harvesting. Farmers used to incur high cost of transportation in bringing their produces from farmer's field to transport point from different parts of the district costing Rs. 50 to 100 per bag to Hayuliang, a minute town where major marketing is done. Since the inception of large cardamom cultivation in the district, no intervention has been made to improve the marketing system from district as well as state department in the field of marketing and thereby, prices are normally fixed by the middlemen and local traders at their own will. In the mean time, traders from outside the district such as Tinsukia, Tezu, Namsai and even from Guwahati approaches to purchase the produces from villages. Moreover, due to the high fluctuation of price and lack of market information, growers find difficulties when and how to sell their produces due to fetch the desire margin.



Source: Field survey, 2021.

Figure 1. Price ranges of L. Cardamom during the last 13 years in Anjaw District

Marketing channel of large cardamom

During the course of interaction with farmers and market intermediaries 3 major marketing channels were identified which includes which includes local traders, village traders, primary wholesaler, secondary wholesaler and distant wholesaler. Mostly farmers were found to be engaged with the village traders at village level for collection of dried capsules and primary wholesaler at Hayuliang town.

Channel I: Producer – Village Trader – Primary Wholesaler – Secondary Wholesaler – Distant Wholesaler
Channel II: Producer – Primary Wholesaler – Secondary Wholesaler – Distant Wholesaler
Channel III: Producer – Secondary Wholesaler – Distant Wholesaler

Usually, after harvesting of large cardamom growers used to go for curing either at the field or at home. Different prices are charged for curing and non-curing of the produces which includes separation of capsule from spike, cutting of calyx, drying (sun drying or temporary Bhatti). Farmers used to sell their produces either without cutting calyx or with calyx after drying and accordingly higher prices are charges for those who sell without calyx of Rs. 20 per kg and lesser prices for without calyx. Perusal of table 1 revealed that for marginal farmers, channel I was found to dispose the highest percentage of 58.92 percent in case of with calyx while for without calyx channel II showed maximum percentage of sell with 37.41 percent. Same case emerged out in case of small farmers where maximum of the produces was transacted through channel I both for with calyx with 47.22 percent and without calyx with 57.14 percent. For medium farmers also channel I indicated the highest percentage of disposal with 45.29 percent and 79.23 percent.

Table 1. Quantity of produces disposed through different channels across farm sizes

Marginal						
Channel	With calyx		Without calyx		Total Quantity (Kg)	Percent of total
	Quantity (Kg)	%	Quantity (Kg)	%		
I	1615	58.92	1126	26.83	2741	39.51
II	676	24.66	1570	37.41	2246	32.37
III	450	16.41	1500	35.74	1950	38.11
Total	2741	100	4196	100	6937	100
Small						
Channel	With calyx		Without calyx		Total Quantity (Kg)	Percent of total
	Quantity (Kg)	%	Quantity (Kg)	%		
I	3539	47.22	6353	57.14	9891	53.14
II	3460	46.17	3442	30.95	6902	37.08
III	495	6.60	1323	11.89	1818	9.76
Total	7494	100	11118	100	18611	100
Medium						
Channel	With calyx (Kg)		Without calyx (Kg)		Total Quantity (Kg)	Percent of total
	Quantity (Kg)	%	Quantity (Kg)	%		
I	5361	45.29	9556	79.23	14917	62.42
II	1659	14.01	2504	20.76	4163	17.42
III	4816	40.68	0	0	4816	20.15
Total	11836	100	12060	100	23896	100

Table 2. Estimation of marketing cost, price spread and efficiency of large cardamom (with calyx)

Intermediaries	Channel 1	Channel 2	Channel 3
PRODUCER	**₹/Kg**	**₹/Kg**	**₹/Kg**
Selling price of producer	572.50	575.80	573.62
Marketing cost	11.67	9.85	9.36
Net price	560.83	565.95	564.26
VILLAGE TRADER			
Selling price of Village Trader	594.62		
Marketing cost	14.43		
Margin	7.69		
PRIMARY WHOLESALER			
Selling price of Primary Wholesaler	597.36	595.65	
Marketing cost	17.30	12.95	
Margin	7.56	6.90	
SECONDARY WHOLESALER			
Selling price of Secondary Wholesaler	615.00	614.58	596.55
Marketing cost	14.00	12.73	13.77
Margin	6.38	6.20	9.16
DISTANT WHOLESALER (Consumer)	615.00	614.58	596.55
Total marketing cost	57.40	35.53	23.13
Total marketing margin	21.63	13.10	9.16
Total price spread	54.17	48.63	32.29
Producer's share in consumer price (%)	91.19	92.09	94.58
Efficiency	7.09	11.63	17.47

Marketing efficiency and Producer's share

The marketing efficiency and producer's share for different channels were estimated separately for without calyx and with calyx for different channels in operations which is presented in table 2 and 3. The reason for this is that producers disposed their produces at different price for with calyx and without calyx. Moreover, it was observed that due to the non-availability of labour and consumption of time for curing process especially for drying and calyx removal, most of the farmers disposes their produces without removal of calyx. As a result of this, the marketing cost of producer is less for with calyx as compared to without calyx.

The study result further revealed that the marketing efficiency and producer's surplus for both with and without calyx gets higher with the decrease in the number of intermediaries. It was also evident that the marketing of large cardamom for both with and without calyx by the producers directly to the consumers in channel III was found to be comparatively more efficient than the other channels as well as the producer's surplus which was found to be 94.58 and 91.08 percent due to less involvement of intermediaries.

Table 3. Estimation of marketing cost, price spread and efficiency of large cardamom (without calyx)

Intermediaries	Channel 1	Channel 2	Channel 3
PRODUCER	**₹/Kg**	**₹/Kg**	**₹/Kg**
Selling price of producer	594.66	596.71	595.76
Marketing cost	26.71	26.93	26.48
Net price	567.95	569.78	569.28
VILLAGE TRADER			

Selling price of Village Trader	615.11		
Marketing cost	12.74		
Margin	7.71		
PRIMARY WHOLESALER			
Selling price of Primary Wholesaler	618.13	616.26	
Marketing cost	16.49	12.77	
Margin	6.98	6.78	
SECONDARY WHOLESALER			
Selling price of Secondary Wholesaler	633.11	635.17	625.00
Marketing cost	11.43	12.63	13.77
Margin	6.57	6.28	15.47
DISTANT WHOLESALER (Consumer)	633.11	635.17	625.00
Total marketing cost	67.37	52.33	40.25
Total marketing margin	21.26	13.06	13.77
Total price spread	65.16	65.39	55.72
Producer's share in consumer price (%)	89.71	89.73	91.08
Efficiency	6.40	8.71	10.53

Table 4. Marketing constraints of large cardamom

Constraints	No. of respondents	Rank
High transportation cost	32	I
High price fluctuation	28	II
Non-availability of labour	21	III
Unavailability of transport facilities and poor road infrastructure	20	IV
Lack of govt. Intervention	13	V
Lack of storage facilities	6	VI

Source: Field survey, 2021

During the course of survey with growers, several constraints were identified in marketing of large cardamom in the districts and major constraints faced by the growers are high price fluctuation, high transportation cost, non-availability of labour, lack of storage facilities, lack of govt. intervention, unavailability of transport facilities and poor road condition. Out of these constraints high transportation cost witnessed the major constraints faced by the growers whereas lack of storage facility stood at least. After harvesting, farmers transport the produces either in raw form or dried form in three stages. The first stage is from field to residential house and from there to transport point and again from transport point to Hayuliang town or district headquarter, Hawai. In such a situation they incurred transportation cost of Rs. 5000 to Rs.6000 thousands. As per farmer's response, high price fluctuation was found to be second issues faced by growers. Almost every day, price of final products fluctuate creating a problem as when and where to sell the produces so as to fetch a premium price and also due to lack of network and transport there is a wide gap of market information among the farmers forcing to sell at unwelcome price. Further, during the peak harvesting period from October last week to January, farmers find difficult to engage labour for harvesting as it requires a minimum of 15 to 20 labours.

3. Conclusion

It can be concluded that from the expenditure point of view separation of capsule from spike, cutting of calyx, drying are the important parts of the post harvest processing of large cardamom capsule. It was revealed that for all the farm categories channel I was found to dispose the highest percentage of the produces with 39051, 53.14 and 62.42 percent. The marketing efficiency and producer's surplus gets higher for with calyx and without calyx with the decrease in the number of market intermediaries. It was also evident that direct disposal of large cardamom to the ultimate consumers in channel III was found to be comparatively more efficient as compared to other channels as well as the producer's surplus due to minimal involvement of market intermediaries. Among the constraints faced by the farmers, high transportation cost was found to be the major issues followed by high price fluctuation while lack of storage facilities was found to be the lowest constraints.

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