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Original Research Paper

Value chain analysis and marketing efficiency of banana in Tamil Nadu

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ABSTRACT

India maintains its global standing as the second-largest producer of fruits, with the banana sector contributing significantly to agricultural growth. In 2022-23, India accounted for 19.37% of world banana production, yielding 34.9 million metric tons across 9.61 lakh hectares. Despite high productivity notably in Tamil Nadu at 36.67 MT/ha and a growing export footprint in the Middle East and Europe, the sector faces systemic inefficiencies. Bananas are highly perishable, and a significant "hiatus" exists between high production and low export/domestic uptake, largely attributed to post-harvest wastage. This study explores the critical need for a "systematic package of practices," including value-added processing and marketing efficiency, to bridge this gap. By examining the entire supply chain from farm to consumer, the research identifies key bottlenecks and proposes strategic interventions to maximize grower returns and consumer satisfaction.

Keywords: Market margin, marketing cost, policy measures, price spread, supply chain management, value addition

INTRODUCTION

India has second position in the world in banana production (FAO Stat, 2023), while, Tamil Nadu leads other states with a share of 19%, Maharashtra has highest productivity of 58.60 metric tonnes against India's average of 32.50 metric tonnes per ha (Kaul, 2017). The main varieties of banana in India are Dwarf Cavendish, Rasthali, Robusta, Povan, Nendran, Karpuravalli and Sevvazhai (India Horticulture Statistics, 2021). Poor efficiency in the marketing channels and inadequate marketing infrastructure is believed to be the cause of not only high and fluctuating product prices, but also too little of the consumer rupee realized by the farmer (Verma et al., 2004). In Tamil Nadu, area under banana is 9.56 lakh ha. with 351.31 MT production and 36.67 MT/ha productivity in 2021-22 (Season and Crop Report, 2022-23). Despite being a leading banana-producing state, Tamil Nadu faces inefficiencies in marketing, high intermediary margins, and low farmer share in consumer prices. The supply chain lacks integration, infrastructure, and effective stakeholder coordination. Tamil Nadu was chosen due to its significant banana area (19% of India's total), diverse varieties, and active public-private participation, making it ideal for such a study. The study was carried out to examine the market, market functions and marketing practices for Banana in Tamil Nadu, India; to find out value chain from the farmer to consumer in terms of handling, value addition, packing; to find out marketing costs, marketing margins and price spread for Banana in Tamil Nadu; and to suggest strategies to improve the efficiency of supply chain for Banana in Tamil Nadu, India

MATERIALS AND METHODS

In Tamil Nadu, Coimbatore and Trichy, districts formed the study area. These two districts were purposively selected for the study taking into consideration the maximum area under Banana cultivation. To find out the supply chain management at producer level, a total of 120 sample respondents were selected for this study, which included 60 farmers and 60 intermediaries were selected using random sampling procedure. The primary data were collected through personal interviews from the farmers and market intermediaries with the help of well-structured interview schedules, during 2023-24. Conventional analysis, price spread and marketing efficiency were worked out to analyze the relative marketing efficiency of different channels.

RESULTS AND DISCUSSION

Preference and reasons for cultivating banana variety

It could be observed from the Table 1 that 70% of the total banana farmers preferred to grow Povan in

Coimbatore district, while in Trichy district, farmers mostly preferred to grow Rasthali (66.7%).

Table 1 : Varietal preference given by farmers

Variety	Districts			
	Coimbatore	%	Trichy	%
Povan	21	70.0	2	6.7
Rasthali	3	10.0	20	66.7
Nendran	3	10.0	1	3.3
Robusta	1	3.3	2	6.7
Sevvazhai	1	3.3	1	3.3
Karpuravalli	1	3.3	4	13.3
Total	30	100.0	30	100.0

The market demand (90%) variable occupied the major deciding factor for growing particular variety followed by high yielding character (85%) and availability of suckers (75%) (Table 2).

Table 2 : Reasons for growing a variety

Character	Respondent (Nos.)	%
Market demand	54	90.0
High yielding	51	85.0
Availability of suckers	45	75.0
Sweetness	25	41.7
Physical characters	12	20.0
Drought resistant	4	6.7

Sources of farm inputs and planting material

The source of purchasing farm inputs haves a great influence on adoption behaviour of the farmers (Table 3). The 43.3% of the farmers purchased their inputs such as pesticides, fertilizers and other growth chemicals from private shops.

Data presented in Table 4 indicated that 91.7% farmers got the suckers from the neighbours. In the sample, it has found that about 13.3% of the farmers selected the better sucker for planting from the own field itself.

Table 3 : Source of purchasing fertilizer/pesticide

Source	Respondent (Nos.)	%
Private shops	26	43.3
Neighbours	22	36.7
Relatives	6	10.0
Company representative	4	6.7
Government	2	3.3

Table 4 : Source of planting material

Source	Respondent (Nos.)	%
Neighbours	55	91.7
Own Field Selection	8	13.3
Relatives	7	11.7
Private agencies	4	6.7
Government	2	3.3

Grading practices at farm level

It is noted that 91.7% of the farmers are practicing grading before marketing of the product (Table 5).

Table 5 : Performing grading practices at farm level

Particular	Respondent (Nos.)	%
Yes	55	91.7
No	5	8.3
Total	60	100.0

Packaging materials used for transporting

Preparation of produce for market may be done either in the field or at the packing house (Table 6). In both Coimbatore and Trichy markets, all the farmers were used banana leaves as packaging material for transport of banana bunches from field to market place.

Table 6 : Packaging material used for marketing

Materials used	Respondent (Nos.)	%
Dried banana leaves	60	100.0

Marketing channels and market place preferred

Commission agents are providing better assistance to sellers by loading and unloading, weighing etc. They are charging commission for their facilitating functions. The commission charges are 6% and 10% of the selling price in Coimbatore and Trichy markets, respectively (Table 7).

Most of the banana farmers are preferred to sell within 10 km from the production field (93.3%) (Table 8). About 3.3% of the farmers marketed in both in local (within 10 km) market and in distant market (>10 km).

Table 7 : Marketing channel preferred by the farmers

Buyers	Respondent (Nos.)		%
	Coimbatore	Trichy	
Commission Agent	22	28	83.3
Pre-harvest contractor	8	2	16.7
Total	30	30	100.0

Table 8 : Preference of marketing place

Market	Respondent (Nos.)	%
Market within 10 km	56	93.3
Market Ã 10 km	2	3.3
Both	2	3.3
Total	60	100

Means of transport used by the farmers

The Tempo van is most preferred for transporting the bulk of bunches to market place. It had been found that 80 per cent of the Banana farmers used tempo/van for transporting the banana (Table 9).

Table 9 : Means of transportation

Particular	Districts		%
	Trichy	Coimbatore	
Tempo/Van	26	22	80.0
Tractors	2	6	13.3
Two-Wheelers	2	2	6.7
Total	30	30	100

Marketing cost for banana

The marketing cost is different for various markets in Coimbatore and Trichy. In both districts, farmers sold banana to commission agents. The commission charges varied in both the markets. Hence, cost of marketing is worked out in Table 10 and 11. In the Coimbatore market (Table 10), farmers had to incur the total marketing cost of Rs.14/bunch. In order to sell in Commission Mandy, farmer had to pay the commission charge of 10% of sales price to the commission agent.

In the Trichy market (Table 11), farmers had to incur the total marketing cost of Rs.18.5/bunch. In this market, average cost of commission was calculated as Rs.10/bunch and accounted for 54.1% of total marketing cost.

Table 10 : Marketing cost in Coimbatore market

Particular	Rs./bunch	% to total cost
Loading from field to vehicle	2	14.3
Transport charges	2.5	17.9
Unloading charges	1	7.1
Toll charges	1.5	10.7
Commission paid	6	42.9
Weighing charges if Nendran	1	7.1
Total	14	100.0

Table 11 : Marketing cost in Trichy market

Particular	Trichy	% to total cost
Loading from field to vehicle	3	16.2
Transport charges	2	10.8
Unloading charges	1	5.4
Toll charges	1.5	8.1
Commission paid	10	54.1
Weighing charges if Nendran	1	5.4
Total	18.5	100.0

Price spread

In Trichy market, two channels prevailed in marketing of banana, and named as Trichy Channel I (T-C-I) and Trichy Channel II (T-C-II). In Trichy channel I (T-C-I) (Table 12), producer, commission agents, wholesalers, retailers and consumers participated in the process of marketing. The average gross price received by the producer was Rs.47.6, Rs.52.8 and Rs.43.7 per kg of Povan, Rasthali and Nendran, respectively.

Trichy Market Channel II (T-C-II)

The price spread of banana in Trichy channel I (T-C-II) is presented in Table 13. In this Channel, producer, commission agents, wholesalers, retailers and consumers participated in the process of marketing. The average gross price received by the producer was Rs.42, Rs.47.3 and Rs.39.2 per kg of Povan, Rasthali and Nendran, respectively. The price paid by the consumer for Povan was Rs.91.8, the same for the varieties Rasthali and Nendran were Rs.98.03 and Rs.87.84 per kg.

Table 12 : Price (Rs./kg) spread of banana in channel I of Trichy market

Particular	Povan		Rasthali		Nendran	
	Rupees	%	Rupees	%	Rupees	%
Farmers						
Gross price received	47.6	55.22	52.80	55.93	43.70	53.50
Net price received	37.99	44.07	42.67	45.20	33.36	40.84
Wholesaler						
Purchase price	47.60	55.22	52.80	55.93	43.70	53.50
Sale price	69.50	80.63	76.30	80.83	64.64	79.14
Retailer						
Purchase price	69.50	80.63	76.30	80.83	64.64	79.14
Price paid by the consumer	86.20	100.00	94.40	100.00	81.68	100.00
Price spread	38.60		41.60		37.98	

Table 13 : Price (Rs./kg) spread of banana in channel II in Trichy market

Particular	Povan		Rasthali		Nendran	
	Rupees	%	Rupees	%	Rupees	%
Farmers						
Gross price received	42.00	45.75	47.30	48.25	47.30	44.63
Pre harvest contractor						
Sale Price	52.90	57.63	58.03	59.20	58.03	57.39
Wholesaler						
Sale Price	75.00	81.70	80.23	81.84	80.23	80.60
Retailers						
Price paid by consumer	91.80	100.00	98.03	100.00	98.03	100.00
Price spread	49.80		50.73		50.73	

Table 14 : Price (Rs./kg) spread of banana in Channel I in Coimbatore market

Particular	Povan		Rasthali		Nendran	
	Rupees	%	Rupees	%	Rupees	%
Farmers						
Gross price received	44.60	55.65	48.10	55.87	41.50	52.40
Net price received	35.74	44.59	38.89	45.17	31.90	40.28
Wholesaler						
Purchase price	44.60	55.65	48.10	55.87	41.50	52.40
Margin	8.60	10.73	9.30	10.80	8.50	10.73
Retailer						
Purchase price	64.25	80.16	68.80	79.91	62.20	78.54
Price paid by the consumer	80.15	100.00	86.10	100.00	79.20	100.00
Price spread	35.55		38.00		37.70	

Table 15 : Price (Rs./kg) spread of banana in Channel II of Coimbatore market

Particular	Povan		Rasthali		Nendran	
	Rupees	%	Rupees	%	Rupees	%
Farmers						
Gross price received	40.50	46.92	43.60	46.71	36.70	43.12
Pre harvest contractor						
Sale Price	50.76	58.81	54.04	57.89	47.71	56.05
Wholesaler						
Sale Price	70.41	81.58	76.04	81.47	68.11	80.02
Retailers						
Price paid by consumer	86.31	100.00	93.34	53.29	85.11	100.00
Price spread	45.81		49.74		48.41	

Table 16 : Marketing Cost of Intermediaries (Rs./100 kg)

Particular	Trichy						Coimbatore					
	Channel I			Channel II			Channel I			Channel II		
	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran
Cost incurred by the producer	96.1	101.3	103.4	0.0	0.0	0.0	88.6	92.1	96.0	0.0	0.0	0.0
Cost incurred by the PHC	0.0	0	0.0	69.0	69.5	80.7	0.0	0.0	0.0	69.0	69.5	80.7
Cost incurred by the wholesaler	133.0	140.0	139.4	135.0	127.0	139.4	110.5	114.0	122.0	110.5	127.0	119.0
Cost incurred by the retailers	70.0	73.0	76.4	71.0	70.0	76.4	62.0	65.0	73.0	62.0	65.0	73.0
Total Marketing Cost of the Intermediaries	299.1	314.3	319.2	275.0	266.5	296.5	261.1	271.1	291.0	241.5	261.5	272.7

Table 17 : Marketing margin of intermediaries (Rs./100 kg)

Particular	Trichy						Coimbatore					
	Channel I			Channel II			Channel I			Channel II		
	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran
Margin of PHC	0.00	0.00	0.00	40.00	37.84	80.70	0.00	0.00	0.00	33.60	34.88	29.36
Margin of the wholesaler	86.00	95.00	70.00	86.00	95.00	139.40	86.00	93.00	85.00	86.00	93.00	85.00
Margin of the retailers	97.00	108.00	94.00	97.00	108.00	76.40	97.00	108.00	97.00	97.00	108.00	97.00
Total margin of the Intermediaries	183.00	203.00	164.00	223.00	240.84	296.50	183.00	201.00	182.00	216.60	235.88	211.36

Table 18 : Farmers share in consumer rupee in selected marketing channels (Rs./100 kg)

Particular	Trichy						Coimbatore					
	Channel I			Channel II			Channel I			Channel II		
	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran
Farmer's price (selling price)	379.90	426.70	333.60	420.00	473.00	392.00	357.40	388.90	319.00	405.00	436.00	367.00
Consumer's price (purchase price)	862.00	944.00	816.80	918.00	980.34	878.36	801.50	861.00	792.00	863.10	933.38	851.06
Farmers share in consumer rupee	44.07	45.20	40.84	45.75	48.25	44.63	44.59	45.17	40.28	46.92	46.71	43.12

Table 19 : Indices of Marketing Efficiency in the Selected Marketing Channels (Rs./100 kg)

Particular	Trichy						Coimbatore					
	Channel I			Channel II			Channel I			Channel II		
	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran	Povan	Rasthali	Nendran
Consumer price	862.00	944.00	816.80	918.00	980.34	878.36	801.50	861.00	792.00	863.10	933.38	851.06
Total Marketing Cost	299.1	314.3	319.2	275.0	266.5	296.5	261.1	271.1	291.0	241.5	261.5	272.7
Total marketing margin	183.00	203.00	164.00	223.00	240.84	296.50	183.00	201.00	182.00	216.60	235.88	211.36
Index of Marketing Efficiency	1.79	1.82	1.69	1.84	1.93	1.48	1.80	1.82	1.67	1.88	1.88	1.76

In Coimbatore market, two channels prevailed in marketing of Banana *viz*., Coimbatore Channel I (C-C-I) and Coimbatore Channel II (C-C-II). The price spread of banana in channel I (C-C-I) is presented in Table 14. In this Channel, producer, commission agents, wholesalers, retailers and consumers participated in the process of marketing. The average gross price received by the producer was Rs. 44.6, Rs. 48.1 and Rs. 41.5 per kg of Povan, Rasthali and Nendran, respectively. The price paid by the consumer for the varieties Povan, Rasthali and Nendran were Rs.80.15, Rs.86.1 and Rs.79.2 per kg, respectively.

Coimbatore market channel II (C-C-II)

The price spread of Banana in Coimbatore channel II (C-C-II) is presented in Table 15. In this Channel, Producer, Commission agents, Wholesalers, Retailers and Consumers participated in the process of marketing. The average gross price received by the producer in this channel was Rs. 40.50, Rs. 43.60 and Rs. 36.70 per kg of Povan, Rasthali and Nendran, respectively. The price paid by the consumer for the varieties Povan, Rasthali and Nendran were Rs.86.31, Rs.93.34 and Rs.85.11 per kg, respectively.

Marketing cost incurred in different channel of banana

The marketing cost incurred by intermediaries involved in banana marketing is presented in Table 16. The analysis revealed that marketing cost was highest for the var. Nendran in Trichy Channel I (Rs.319.2/100 kg) and lowest for var. Povan in Coimbatore Channel II (Rs. 241.5/100 kg) (Gadre et al., 2002).

Marketing margin of intermediaries of banana

This finding aligns with Naik & Yogish (2018), the market margin of the intermediaries in Banana (Table 17) was found to be the higher in channel II or Nendran (Rs. 296.5/100 kg). This is primarily due to the multiple layers of intermediaries, including pre-harvest contractors, wholesalers, and retailers, each adding their own margin.

Farmer's share in consumer's rupee

The farmer's share in consumer's rupee was worked and the results were presented in Table 18. It was found that the farmer's share ranged from 40.28% to 48.25%, with the lowest in Coimbatore Channel I (Nendran) and the highest in Trichy Channel II (Rasthali). The lower share in some channels is due to higher cumulative marketing costs and commission charges.

Marketing efficiency

The results of the analysis of marketing efficiency in the six marketing channels prevailing in three different markets were presented in the Table 19. Marketing efficiency was highest in Trichy Channel II for Rasthali (1.93) and lowest for Nendran in the same channel (1.48). Higher efficiency in Rasthali marketing can be attributed to better handling characteristics, fewer losses, and moderate pricing, while Nendran's bulkiness and perishability reduce efficiency despite high end-prices as per Malaisamy (2021), Arun & Malaisamy (2024) and Praveena et al. (2025) findings.

Policy suggestions

To develop the integrated agri-value chain, linking various stack holders of agriculture market the Public Private Partnership approach can provide a better platform. The "Integrated Agro-Bridge Center", which would not only fulfill the agriculture input requirement but also provide better and efficient agriculture produce market. In India the agriculture produce is distributed according to geographical proficiency.

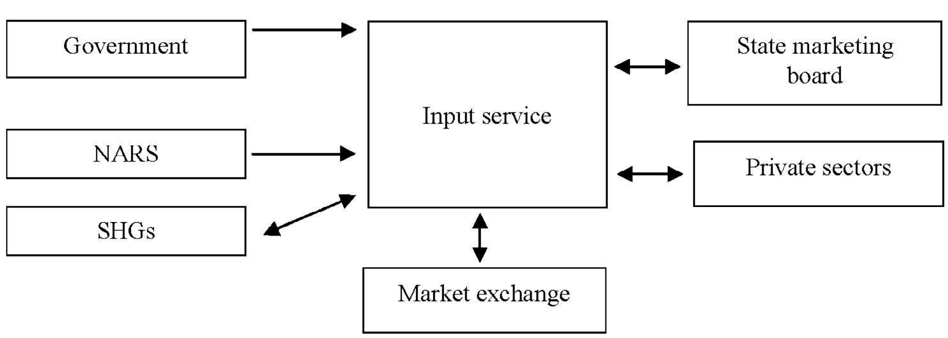

Fig. 1 : Public private partnership structure

a. The structure based on the field survey help the farmers to shorten the cost of cultivation by reducing the post harvest losses, transportation costs, energy losses by maximizing the optimum use of available resource, enhancing environment quality and earning better profit from better quality product.

b. The higher returns can be ensured through high quality product, off-season availability, and through enhancing the productivity, which would help the government to meet the issue of food security to certain extent.

c. Banana being a highly perishable fruit, establishing a co-operative marketing society exclusively for banana trade will replace the domination of middlemen like pre-harvest contractors and high commission charges incurred by farmers in this trade.

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