Socio Economic Analysis and Marketing of Poovan and Nendran Banana in Thiruvananthapuram District of Kerala

Sampath R. Vijayan [a++*] and Sanjay Kumar [a#]

[a] *Department of Agricultural Economics, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh, India.*

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Original Research Article

ABSTRACT

The investigation was conducted in the year 2023 using a sample of one twenty respondent banana growers in the Thiruvananthapuram district of Kerala. Research data were collected using Simple tabular analysis the average and percentage analysis were used to determine the socio- economic condition of banana growers. The study revealed that total area under banana of the sample farmers was 230.58 ha, of which 59.58 percent was under Nendran and 40.42 percent was under Poovan banana. 87.5% from the total respondents were men and mostly between age group of 35–49. The remaining of the total respondent women. Only 13.33% of the growers were found between the age 20-34 years, while 64.16% were found in the age group of 35-49 years and 22.5% present under the age of 50-70. The literacy percentage of marginal, small, semi medium, medium size farm group was 90.83% respectively and illiteracy percentage is 9.16 %. Only 9.16 % of producers

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++ *Research Scholar;*
# *Assistant Professor;*
Corresponding author: E-mail: samrv5423@gmail.com;

were having Graduation, 17.5% were having Intermediate and 28.33% having Middle. Whereas most of the respondent 35.83% primary education. In case of marketing in banana highest quantity of Nendran banana was disposed off in channels- II and for Poovan Banana is also disposed in channels -II. The study also revealed that the channel- I (25.15) i.e., producer - consumer was most efficient channel among the two marketing channels of Nendran Banana when compare to channel -II (7.19). Similarly for Poovan Banana higher in channel-I (19.76) when compare to channel-II (6.55).

1. INTRODUCTION

Banana is an important domesticated herbaceous fruit crop of many tropical and subtropical regions in India [1]. It is the oldest and commonest fruit known to the mankind. India is the 20th biggest exporter of bananas globally due to the fact that the country also consumes bananas in greater quantity. It is the fourth largest contributor in total export of fruits from India. It is a very popular fruit due to its low price and higher nutritive value [2]. It is consumed in fresh or cooked form both as ripe and raw fruit. The advantage of this fruit is availability round the year makes it the favourite fruit among all classes of people. Banana and plantains are grown in about 120 countries in the world The major banana producing countries in the world include China, Ecuador, Philippines, Brazil, Indonesia, Guatemala, Angola and Burundi [3]. Bananas are a cheap energy source. It contains 27% carbohydrate, 1.0% protein, and 0.3% fat, providing 116 kcal of energy per 100 g of flesh. It has plenty of micro and macronutrient. Banana is a highly nutritious fruit, and the pulp (edible portion) of ripe fruit is rich in vitamin A, B-complex (thiamine, riboflavin, niacin, pantothenic acid, pyridoxine, and folic acid), ascorbic acid vitamin E and micro (iron, copper, and zinc) and macro minerals (potassium, calcium, phosphorus, and magnesium). Due to its value, banana is made into powder and can be used as a major ingredient in preparing baby foods and healthy drinks [4]. The fruit is easy to digest and free from fat and cholesterol. It helps in reducing the risk of heart diseases when used regularly and is recommended for patients suffering from high blood pressure, arthritis, ulcer, gastroenteritis, and kidney disorders. Low glycaemic, pre-biotic products can be made from banana flour with a considerable amount of resistant starch All social, religious festivals and functions that are adorned with banana plants are considered auspicious, besides providing beauty to the occasion. It is referred as "Kalpatharu" (Plant of Virtue) due to its multifaceted uses. Banana plants are the largest plants on earth without a woody stem. Banana is the most delicious fruit used as subsidiary food. It is consumed as table purpose as well as culinary fruit, its leaves are universally used for serving meals in South India and chopped banana stems are used as cattle feed. Some species of banana yield fibre, which is used for making ropes. The tip of inflorescence is cooked as a vegetable in some places [5]. Medicinally, fruit of Nendran is a good laxative and fruit pulp contains vitamins B1, B2, B3, vitamin C, amino acids, iron, calcium phosphorus and proteins in substantial amount which are included in the daily need diet for human beings. The varietal characteristics of Nendran banana include, diversity in plant stature, bunches with 5-6 hands of about 6-12 kg. Fruits have a distinct neck with thick green skin turning buff yellow on ripening. Fruits remain starchy even on ripening. Chips made from fruits at 80 per cent maturity are of very high demand. [6]. Banana is a very productive crop. Banana cultivation can generate a high output, but the main issue was marketing. The main factors interfering with banana production were pests and illnesses [7]. Major marketing challenges were a lack of producer organisations, organic certification, and storage. The outcomes of the study will be useful for research in universities and other development organisations, as well as for other uses. The study will identify the many obstacles in banana production and selling in Thiruvananthapuram district, as well as how the farmer's problem may be solved by various strategies, in order to minimise the per unit cost of production.

2. OBJECTIVES OF STUDY

1. To determine socio economic profile of banana growers in the study area.
2. To analyse producer's share in consumer rupee, price spread and marketing efficiency in different existing marketing channels.

3. RESEARCH METHODOLOGY

Sampling design: Multi-stage sampling procedure was adopted for the selection of samples:

I st Stage - Selection of District
II nd Stage - Selection of Block
III rd Stage - Selection of Villages
IV th Stage - Selection of Respondents
V th Stage - Selection of Market
VI th Stage - Selection of Marketing functionaries

Selection of District: Thiruvananthapuram district of Kerala was taken purposively as it has the highest area under cultivation of Nendran and Poovan banana among all the other districts.

Selection of Blocks: There are 11 blocks in the district and Nedumangad block was selected purposively according to area of production.

Selection of Villages: The list of all the villages was prepared with the help of Block Development Officer, and it is arranged in ascending order. There are 26 villages in Nedumangad Block. Out of that cultivation of Poovan and Nendran banana is concentrated in 10 villages. Four villages were randomly selected for the study.

Selection of Sample Respondents: The individuals in charge of all selected villages provided a complete list of all respondents cultivating both Nendran and Poovan. Then, 10% of all farmers are chosen at random for the current study. Respondents are divided into categories based on the amount of land they own.

- Marginal = less than 1 ha
- Small = 1-2 ha
- Semi-Medium = 2-4 ha
- Medium = 4- 10 ha
- Large = more than 10 ha

All together total respondent is 120 viz., 40 marginal,37 small, 28 semi- medium, 15 medium respondents respectively. There was no large farmer in the study area.

Analysis of data:

Measures of marketing concept: The different cost items that are included under each concept are given in detailed below with their procedure.

i. Marketing Cost:

The total cost incurred on marketing by various intermediaries involved in the sale and purchase of the commodity till it reaches the ultimate consumer was computed as follow.

$$C = C_f + C_{m1} + C_{m2} + \ldots + C_{mn}$$

Where,

C= Total cost of marketing
C_f = Cost paid by the producer from the time the produce leaves till he sells it
C_{mn}= Cost incurred by the ith middlemen in the process of buying and selling the products.

ii. Marketable Surplus

$$MS = P - C$$

Where,

MS = Marketable surplus P =Total production
C = Total requirements (family consumption, farm needs, payment to labour, artisans, landlord and payment for social and religious work)

iii. Producer's share in consumer's rupee

Ps = Producer's share
PF = Price received by the farmer
Pr = Retail price paid by the consumer

Marketing margin of middlemen
Absolute margin

$$= PR_i (PP_i + C_{mi})$$

Percentage margin of ith middlemen

Where,

PR_i = Total value of receipts per unit (sale price)
Pp_i = Purchase value of goods per unit (purchase price)
C_{mi} = Cost incurred on marketing per unit.

The margin includes profit to the middlemen and returns to storage, interest on capital, overheads and establishment expenditure

iv. Price spread

Price spread is defined as the difference between the price paid by the consumer and the net price receive by producer for an equivalent quantity of farm produce.

Price spread = Consumer price - Net price of producer

v. Marketing Efficiency:

It has been calculated using Acharya's Modified Marketing efficiency. Formulae as follows

FP= Price received by farmer
MC= Marketing Cost
MM = Marketing Margin

4. RESULTS AND DISCUSSION

Table 1 it was observed that the total area under Banana of the entire sample farmer was 230.58 ha, of which 40.42 percent was under Poovan Banana and 59.58 percent area was under Nendran Banana. 45.25 ha of medium farmer are found to be highest followed by 32.1 ha of Semi – medium, 30.5 ha of small and 17.15 ha of marginal farms.

Table (2) More than 87.5% from the total respondents were men and mostly between age group of 35-49. The Remaining of the total respondent women, Table (2) shows that at the time of surveys, only 13.33%of the growers were found in the age group of 20-34, while 64.16 % were found in the age group of 35-49 years and 22.5% present under the age of 50 and above. During interaction with the households, it was observed that the role of younger generations, who are more educated and can easily integrate new ideas, is less. The role of older generation in the decision-making process is more. Because of their age they are not only the heads of the families but also the final decision makers [8].

Table (3) revealed that 9.16 % of producers were having Graduation, 17.5% were having Intermediate and 28.33% having Middle. Whereas most of the respondent 35.83% Primary education. The literacy percentage of marginal, small, semi medium, medium size farm group was 90.83% respectively and illiteracy percentage is 9.16 %.

Table 1. Farm level distribution pattern of land across different farm size (ha)

				M S SM MD= 40+37+28+15= 120
Farm size	**Total area under banana**	**POOVAN**	**NENDRAN**	**Average area**
Marginal	29.13 (100)	11.98 (41.12)	17.15 (58.87)	0.72
Small	49.1 (100)	18.6 (37.88)	30.5 (62.11)	1.32
Semi- medium	76.6 (100)	32.1 (41.90)	44.5 (58.09)	2.73
Medium	75.75 (100)	30.5 (40.26)	45.25 (59.73)	5.05
All farms	230.58 (100)	93.18 (40.42)	137.4 (59.58)	1.92

Table 2. Age distribution and sex composition in different size group

Total number of growers		**Marginal**	**Small**	**Semi-medium**	**Medium**	**Total**
		40(33.33)	37(30.83)	28(23.33)	15(12.5)	120(100)
Sex ratio (%)	Male	37(92.5)	33(89.18)	21(75)	14(93.33)	105(87.5)
	Female	3(7.5)	4(10.81)	7(25)	1(6.66)	15(12.5)
Age group (%)	20- 34	5(12.5)	6(16.21)	5(17.85)	0(0)	16(13.33)
	35-49	29(72.5)	18(48.64)	19(67.85)	11(73.33)	77(64.16)
	50-70	6(15)	13(35.13)	4(14.28)	4(26.66)	27(22.50)

Table 3. Literacy level of different size group

S. No.	**Level of Education**	**Marginal**	**Small**	**Semi-medium**	**Medium**	**Total**
1	Total no. of Banana growers	40(33.33)	37(30.83)	28(23.33)	15(12.5)	120(100)
2	Uneducated	4(10)	4(10.81)	3(10.71)	0(0)	11(9.16)
3	Primary	12(30)	11(29.72)	11(39.28)	9(60)	43(35.83)
4	Middle	12(30)	10(27.02)	7(25)	5(33.33)	34(28.33)
5	Intermediate	7(17.5)	8(21.62)	5(17.85)	1(6.66)	21(17.5)
6	Graduation	5(12.5)	4(10.81)	2(7.14)	0(0)	11(9.16)
7	Total literate	36(90)	33(89.18)	25(89.28)	15(100)	109(90.83)

Table 4. Detail description of occupational distribution in different Size of Farms Group

S .No.	Particulars	Size of farm group				Total
		Marginal	Small	Semi-medium	Medium	No. of Sample
1	Size of farms group (In numbers)	40(100)	37(100)	28(100)	15(100)	120(100)
I	One occupation (primary)	25(62.5)	29(78.37)	17(60.71)	10(66.66)	81(67.5)
II	Two occupations (Secondary)	9(22.5)	5(13.51)	7(25)	3(20)	24(20)
III	Three occupation (Tertiary)	6(15)	3(8.10)	4(14.2)	2(13.33)	15(12.5)

Table (4) shows that size of the farms group in numbers for Marginal, Small, semi medium and medium size of farms were 40, 37, 28 and 15 respectively. Primary Occupation was highest in small size farms 78.37 per cent followed by medium size farms 66.66 per cent followed by semi medium farms 60.71 per cent and lowest in case of marginal farms with 62.5 per cent. This makes the sample average for Primary occupation to 67.5 per cent for different size of farms group. Secondary occupation for Marginal, Small, Semi -medium and medium size farm group was 22.5per cent, 13.51per cent, 25 per cent, and 20 percent respectively and the sample average for secondary occupation was 20 per cent for different size of farms group. Tertiary occupation for Marginal, Small, semi medium and medium Size farm group was 15%, 8.10%, 14.2%, 13.33% respectively and the sample average for tertiary occupation was 12.5 per cent among different size of farms group.

Table 5 shows the disposal pattern of Marketable surplus in different channels of marketing in different size farm group of Nendran Banana farmer. The actual marketable surplus is highest in case of medium size farm group (232.57 quintals) followed by semi-medium (229.58 quintals), small size farm (227.57 quintals) and marginal size farm (225.98 quintals) respectively. It is seen from the Table 5 that producer in the study area disposes their produce in two channels prevailed in the study area. The most prefer channel for disposal of their produce is channel II followed by channel I [9].

Table 6 shows the disposal pattern of Marketable surplus in different channels of marketing in different size farm group of Poovan Banana. The actual marketable surplus is highest in case of medium size farm group (352.09 quintals) followed by semi- medium(347.74quintals), small size farm (344.78 quintals) and marginal size

farm (339.04 quintals) respectively. It is seen from the Table 6 that producer in the study area disposes their produce in two channels prevailed in the study area [10]. The most prefer channel for disposal of their produce is channel II followed by channel I.

Table 7 reveals the marketing cost, marketing margin, price spread and marketing efficiency of Nendran Banana and Poovan Banana in channel I. For Nendran Banana, the producer's sale price was Rs 3400/qtl and the marketing cost include cost of bags Rs 70/qtl, unloading & loading cost Rs 40/qtl, weighing charges Rs 10/qtl and miscellaneous charge Rs 10/qtl which makes the total marketing cost 3.82 per cent. The net price received by the producer was Rs 3270/qt. Producer's share in consumers rupee was 96.18 percent. Price spread was Rs 130/qt which makes the marketing efficiency 25.15. In case of Poovan Banana, the producer's sale price was Rs 2700/qtl and the marketing cost include cost of bags Rs 70/qtl, unloading & loading cost Rs 40/qtl, weighing charges Rs 10/qtl and miscellaneous charge Rs 10/qtl which makes the total marketing cost 4.81 per cent. The net price received by the producer was Rs 2570/qt. Producer's share in consumers rupee was Rs 95.19 percent. Price spread was Rs 130/qt which makes the marketing efficiency 19.76.

Table 8 reveals the marketing cost, marketing margin, price spread and marketing efficiency in channel II of Nendran Banana and Poovan Banana. In case of Nendran Banana, Cost incurred by the producer shows that the total marketing cost was 3.88 percent and net price received by producer was 74.88 percent. Cost incurred by wholesaler includes marketing cost like packing cost Rs 60/qtl, transportation cost Rs 85/qtl, weighing charges Rs Rs5/qtl and miscellaneous charges Rs 8/qtl respectively. This makes the total marketing cost of 5.20 per cent. Sale price of wholesaler to retailer was 94.25 per

Table 5. Disposal pattern of marketable surplus in different channels of marketing in different Size of farm group of Nendran Banana

M S SM MD= 40+37+28+15= 120

S.no	Particulars	Size of Farms Group				
		Marginal	Small	Semi-medium	Medium	Sample average
1	Marketable surplus from own farm	225.98(99.34)	227.57(99.18)	229.58(98.96)	232.57(98.89)	228(99.09)
2	Quantities purchased from other farms	-	-	-	-	-
3	Actual Marketable surplus (in quintals)	225.98(99.34)	227.57(99.18)	229.58(98.96)	232.57(98.89)	228(99.09)
	Producer – consumer	45.44(20.11)	44.11(19.52)	37.15(16.44)	41.15(18.21)	41.96(18.40)
	Producer -wholesaler- retailer-consumer	180.54(79.89)	183.46(80.64)	192.43(83.56)	191.42(81.79)	186.04(81.6)

Table 6. Disposal pattern of marketable surplus in different channels of marketing in different Size of farm group of Poovan Banana

S.no	Particulars	Size of Farms Group				
		Marginal	Small	Semi-Medium	Medium	Sample average
1	Marketable surplus from own farm	339.04(100)	344.78(100)	347.74(100)	352.09(100)	344.47(100)
2	Quantities purchased from other farms	-	-	-	-	-
3	Actual Marketable surplus (in quintals)	339.04(100)	344.78(100)	347.74(100)	352.09(100)	344.47(100)
	Producer - consumer	115.98(34.21)	120.49(35.54)	103.64(30.57)	106.45(31.4)	111.64(32.40)
	Producer - wholesaler-retailer- consumer	223.06(65.79)	224.29(64.46)	244.1(69.43)	245.64(68.6)	232.83(67.6)

Table 7. Marketing Cost, Marketing Margin, Price spread and Marketing Efficiency in Channel I

S. No.	Particulars	Nendran Banana		Poovan Banana	
		Price/Qtl	Percentage	Price/Qtl	Percentage
1	Producer sale price	3400	100	2700	100
2	Cost incurred by Producer				
A	Cost of bags	70	2.06	70	2.59
B	Loading/unloading	40	1.18	40	1.48
C	Weighing charges	10	0.29	10	0.37
D	Miscellaneous charge	10	0.29	10	0.37
E	Total marketing cost	130	3.82	130	4.81
3	Consumer paid price	3400	100	2700	100
4	Net price received by Producer	3270		2570	
5	Producer's share in consumer rupee	96.18		95.19	
6	Price spread	130		130	
7	Marketing efficiency	25.15		19.76	

Table 8. Marketing Cost, Marketing Margin, Price spread and Marketing Efficiency in Channel II

S. No.	Particulars	Nendran Banana		Poovan Banana	
		Price/Qtl	Percentage	Price /Qtl	Percentage
1	Producer sale price	3150		2450	
2	**Cost incurred by producer**				
A	Cost of bags	60	1.50	60	1.8
B	Loading/unloading	40	1	40	1.25
C	Weighing charges	5	0.13	5	0.16
D	Transportation charges	35	0.88	35	1.09
E	Miscellaneous charge	15	0.38	15	0.47
F	Total marketing cost	155	3.88	155	4.84
3	Net price received by Producer	2995	74.88	2295	71.72
4	**Cost incurred by wholesaler**				
A	Cost of bags	55	1.38	55	1.71
B	Miscellaneous charges	8	0.20	8	0.25
C	Transportation charges	85	2.13	85	2.65
D	Weighing charges	5	0.13	5	0.15
	Loading /unloading	40	1	40	1.25
	Market fee	15	0.38	15	0.46
E	Total marketing cost	208	5.20	208	6.5
5	Sale price of Wholesaler to retailer	3770	94.25	3015	94.21
6	Wholesaler margin	620	15.5	565	17.6
7	**Cost incurred by retailer**				
	Weighing charges	5	0.12	5	0.15
	Loading /unloading	40	1	40	1.25
	Market fee	15	0.37	15	0.46
	Miscellaneous charges	10	0.25	10	0.31
	Transportation charges	55	1.37	55	1.71
	Total marketing cost	125	3.12	125	3.90
	Sale price of retailer to consumer	4000	100	3200	100
8	Retailer margin	230	5.75	185	5.78
9	**Price spread**	1005		905	
10	**Producer's share in consumer rupee**	78.75		76.56	
11	**Marketing efficiency**	7.196		6.55	

Table 9. Estimation of Total Marketing Cost and Marketing Margin in Different Channels

S.no	Particulars	Channel I NEN	Channel I POO	Channel II NEN	Channel II POO
1	Total marketing cost	130	130	488	488
2	Total marketing margins	0	0	850	750
3	Price spread	130	130	1005	905
4	Producer's share in consumer rupee in per cent	96.18	95.19	78.75	76.56
5	Marketing efficiency in percent	25.15	19.76	7.19	6.55

cent and the wholesaler margin was 15.5 per cent. Cost incurred by retailers includes unloading & loading cost Rs 40/qtl, weighing charges Rs 5/qtl and miscellaneous charges Rs 10/qtl respectively which makes the total marketing cost 3.125 per cent. Sale price of retailer to consumer is Rs 4000/qtl and retailer margin was 5.75 per cent. Price spread was Rs 1005 and producer's share in consumers rupee was 78.75 percent, which makes the marketing efficiency 7.196.

Whereas, In Poovan Banana, Cost incurred by the producer shows that the total marketing cost was 4.84 percent and net price received by producer was 71.72 percent. Cost incurred by wholesaler includes marketing cost like packing cost Rs 55/qtl, transportation cost Rs 85/qtl, weighing charges Rs5/qtl and miscellaneous charges Rs 8/qtl respectively. This makes the total marketing cost of 6.5 per cent. Sale price of wholesaler to retailer was 94.21 per cent and the wholesaler margin was 17.65 per cent. Cost incurred by retailers includes unloading & loading cost Rs 40/qtl, weighing charges Rs 5/qtl and miscellaneous charges Rs 10/qtl respectively which makes the total marketing cost 3.90 per cent. Sale price of retailer to consumer is Rs 3200/qtl and retailers' margin was 5.78 per cent. Price spread was Rs 905 and producer's share in consumer rupee was 76.56 percent, which makes the marketing efficiency 6.55.

It represents the marketing efficiency of Nendran Banana and Poovan Banana in different marketing channels of operation in the study area. It was seen that marketing efficiency for Nendran Banana was much higher in channel-I (25.15) than that of the channel-II (7.19). Similarly, marketing efficiency for Poovan Banana was higher in channel-I (19.76) followed by channel-II (6.55). Thus, the study revealed that channel-I is the most efficient channel for both Nendran and Poovan Banana among the two channels of marketing This was due to the absence of middlemen and consequently the cost incurred in this channel I was much lower as compared to channel- II [11].

5. CONCLUSION

The socio-economic analysis and marketing of Poovan and Nendran varieties of banana in Thiruvananthapuram District, Kerala, revealed some interesting findings. Majority of the respondents were found to be literate and most of the farmers had one occupation at least, have well financial background and more access to almost all the assets. Little amount of produce was only retained for home consumption due to shelf life of banana and the remaining produce is marketed through two marketing channels i.e., channel-I producer - consumer and channels -II producer- wholesaler- retailer - consumer. The second hypothesis was price spread will increase with increase of middlemen in the marketing channels. It was observed that among the two marketing channels in the study area, Channel I – Producer consumer exhibit high marketing efficiency as compared to Channel II Producer - Wholesaler- Retailer- Consumer and in the case of Channel I the price spread for both varieties were 130 and in the case of channel II the price spread was 905 and 1005, this shows that price spread increases with increase in middlemen. It was also observed that channel-I was the most efficient channel and farmer received highest price for their produce in this channel.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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