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How far banana farmers sustain their livelihood? A case study on Coimbatore district of Tamil Nadu

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Abstract

Horticulture plays a vital role in Indian agrarian economy. India has emerged as world leader in the production of a variety of fruits like mango, banana, guava, papaya, sapota, pomegranate. India is a major exporter of fruits to the world. Banana (*Musa* sp.) is the second most important fruit crop in India next to mango. In the present study, the supply chain of banana has been analysed in the Coimbatore district of Tamil Nadu. The study reveals that the price received by the banana farmer is Rs 15/kg, which constituted about 15 percent of the consumer price. And, the marketing cost incurred by the wholesaler accounted for about 20 percent of final price and by the processor cum retailer was also twenty percent of final price.

Keywords: Banana farmers sustain, livelihood, *Musa* sp.

Introduction

Indian horticulture sector contributes about 33% to the agriculture Gross Value Added (GVA) making very significant contribution to the Indian economy. Apart from ensuring nutritional security of the nation, it provides alternate rural employment opportunities, diversification in farm activities, and enhanced income to farmers. India is currently producing about 320.48 million tones of horticulture produce which has surpassed the food grain production, that too from much less area (25.66 million Ha. for horticulture against 127.6 M. ha. for food grains). Productivity of horticulture crops is much higher compared to productivity of food grains (12.49 tones/ha against 2.23 tones/ha.). Launch of National Horticulture Mission has spurred the production and productivity of horticultural crops. Productivity of horticulture crops has increased by about 38.5% between 2004-05 and 2021-22. Increase in demand for horticultural produce due to greater health awareness, rising income, export demands and increasing population poses the challenge for further increasing the production and productivity of horticultural crops. The issue of climate change has thrown up greater uncertainties and risks, further imposing constraints on production systems.

India has emerged as world leader in the production of a variety of fruits like mango, banana, guava, papaya, sapota, pomegranate, Lime & aonla and is the second largest producer of fruits and vegetables. Besides, India has maintained its dominance in the production of spices, coconut and cashewnut. Among the new crops, kiwi, gherkins, kinnow, date palm and oil palm have been successfully introduced for commercial cultivation in the country.

India is a major exporter of fruits to the world. Banana (*Musa* sp.) is the second most important fruit crop in India next to mango. Its year round availability, affordability, varietal range, taste, nutritive and medicinal value makes it the favourite fruit among all classes of people. It has also good export potential. Hi-tech cultivation of the crop is an economically viable enterprise leading to increase in productivity, improvement in produce quality and early crop maturity with the produce commanding premium price.

Banana evolved in the humid tropical regions of S.E. Asia with India as one of its centres of origin. Modern edible varieties have evolved from the two species – *Musa acuminata* and *Musa balbisiana* and their natural hybrids, originally found in the rain forests of S.E. Asia. During the seventh century AD its cultivation spread to Egypt and Africa. At present banana is being cultivated throughout the warm tropical regions of the world between 30° N and 30° S of the equator.

Banana and plantains are grown in about 120 countries. Total annual world production is estimated at 86 million tonnes of fruits.

India leads the world in banana production with an annual output of about 14.2 million tonnes. Other leading producers are Brazil, Ecuador, China, Philippines, Indonesia, Costa Rica, Mexico, Thailand and Colombia. In India banana ranks first in production and third in area among fruit crops. It accounts for 13% of the total area and 33% of the production of fruits. Production is highest in Maharashtra followed by Tamil Nadu (Sathya *et al.*, 2022) [7]. Within India, Maharashtra has the highest productivity of 65.70 metric tonnes /ha. against national average of 30.5 tonnes/ha. The other major banana producing states are Karnataka, Gujarat, Andhra Pradesh and Assam. Banana is a very popular fruit due to its low price and high nutritive value. It is consumed in fresh or cooked form both as ripe and raw fruit.

Banana is a rich source of carbohydrate and is rich in vitamins particularly vitamin B. It is also a good source of potassium, phosphorus, calcium and magnesium. The fruit is easy to digest, free from fat and cholesterol. Banana powder is used as the first baby food. It helps in reducing risk of heart diseases when used regularly and is recommended for patients suffering from high blood pressure, arthritis, ulcer, gastroenteritis and kidney disorders. Processed products, such as chips, banana puree, jam, jelly, juice, wine and halwa can be made from the fruit. The tender stem, which bears the inflorescence is extracted by removing the leaf sheaths of the harvested pseudostem and used as vegetable. Plantains or cooking bananas are rich in starch and have a chemical composition similar to that of potato.

Banana fibre is used to make items like bags, pots and wall hangers. Rope and good quality paper can be prepared from banana waste. Banana leaves are used as healthy and hygienic eating plates. Only 0.05% of domestic production is exported and the rest is consumed within the country mostly as a table fruit. However, domestic marketing was largely in the unorganized sector till recently with itinerant trades mopping up the produce at farm level. The marketing chain from producer to customer was long involving four to five intermediaries. This marketing system denied the producer a fair price and also added to the marketing margins putting up the price paid by the consumers.

Although banana is the main fruit in international trade and the most popular one, ranking second after citrus in terms of value, main banana producing countries, such as India or Brazil, are hardly involved in it. Bananas are imported mainly by the European Union, the United States of America and Japan, which together accounted for about 70% of world total imports in 2002, while the first ten banana importing countries represented more than 86% of total imports (considering the EU as a whole). Markets such as the Russian Federation, China or Easter European countries are emerging now as destinations for banana exports.

India exports bananas mainly to Middle East countries *viz.* U.A.E., Saudi Arabia, Oman, Bahrain, Qatar. The varieties which are in demand internationally include Grand Naine and Cavendish. In the present study, the supply chain of banana has been analyzed in the Coimbatore district of Tamil Nadu.

Data and Methodology

Collection of Data

The primary data required for the study were collected through personal interview with the help of a comprehensive interview schedule. Two separate sets of interview schedules were prepared, one for farmers and another one for the

intermediaries. The questionnaires for the study were designed considering physical, cultural and socio-economic environment of banana production and marketing in the study area and the questionnaires were pre-tested and finalized. The interview schedule for farmers covered aspects such as general farm and household characteristics, details on cultivation practices adopted in banana cultivation and cost of cultivation, details on marketing of banana, problems in production and marketing, etc. The schedule for intermediaries covered aspects such as general characteristics, quantity and quality of banana handled, reasons for preference of a particular marketing channel, and the problems faced, etc. Information about cost incurred and profit realized by different market functionaries were also collected to estimate the price spread. For the present study totally data has been collected from 90 farmers belongs to Annur block of Coimbatore district in the year 2020-21.

Price Spread Analysis

Information on prices prevailed and the costs involved in marketing of turmeric at different stages of marketing channel were collected from the farmers and traders. The costs of marketing include transport, weighing, loading and unloading, packing, storage, losses due to spoilage, and other incidental expenses incurred for marketing the produce.

In the process of marketing of turmeric, the difference between price paid by the consumer and that received by the turmeric producer for an equivalent quantity of turmeric was defined as "price spread". Data on profits of the various market functionaries involved in moving the produce from the initial point of production till it reached the ultimate consumer were collected. In this study, sum-of-average gross margin method was used in the estimation of price spread.

a. Sum-of-Average Gross Margin Method

The average gross margins of all the intermediaries were added to obtain the total marketing margin as well as the break up of the consumer's rupee.

$$MT = \sum_{i=1}^n \{ S_i - P_i \} Q_i$$

Where,

MT = Total Marketing Margin

S_i = Sale value of a product for i^{th} intermediary

P_i = Purchase value paid by the i^{th} intermediary

Q_i = Quantity of the product handled by the i^{th} intermediary

$i = 1, 2, 3 \dots N$ (Number of intermediaries involved in the supply chain)

b. Farmer's Share in Consumer Rupee

Further, the Farmer's share in consumer rupee was calculated with the help of the following formula.

$$Fs = (Fp/Cp) \times 100$$

Where,

Fs = Farmer's share in consumer rupee (percentage)

Fp = Farmer's price

Cp = consumer's price

Marketing Efficiency

Marketing efficiency is a measure of market performance. The movement of goods from producers to the ultimate

consumers at the lowest possible cost consistent with the provision of service desired by the consumers is termed as efficient marketing.

a. Shepherd’s Formula

Shepherd (1965) [9] suggested that the ratio of total value of goods marketed to the marketing cost could be used as a measure of marketing efficiency. The higher this ratio, higher would be the efficiency and vice versa. This can be expressed in the following form.

$$ME = [(V/I)-1]$$

Where,

ME = Index of marketing efficiency

V = Value of goods sold

I = Total marketing cost

b. Acharya’s Approach

According to Acharya (2003) [10], an ideal measure of marketing efficiency, particularly for comparing the efficiency of alternate markets channels should take into account all of the following

1. Total marketing costs (MC)
2. Net marketing margin (MM)
3. Prices received by the farmer (FP)
4. Prices paid by the consumer (RP)

Further, the measure should reflect the following relationship between each of these variables and the marketing efficiency.

1. Higher the (a), the lower the efficiency
2. Higher the (b), the lower the efficiency
3. Higher the (c), the higher the efficiency
4. Higher the (d), the lower the efficiency

As there is an exact relationship among four variables, i.e. a+b+c = d, any three of these could be used to arrive at a measure for comparing the marketing efficiency. The following measure is suggested by Acharya,

$$ME = FP \div (MC + MM)$$

c. Calkin’s index

The Calkin’s index of marketing efficiency is estimated using the following formula.

$$\text{Marketing efficiency} = 1 + \left[\frac{\text{Sum of profit or margin}}{\text{Sum of marketing cost}} \right]$$

The lower the value of the index, higher would be the efficiency.

**Results and Discussion
Value Chain of Banana**

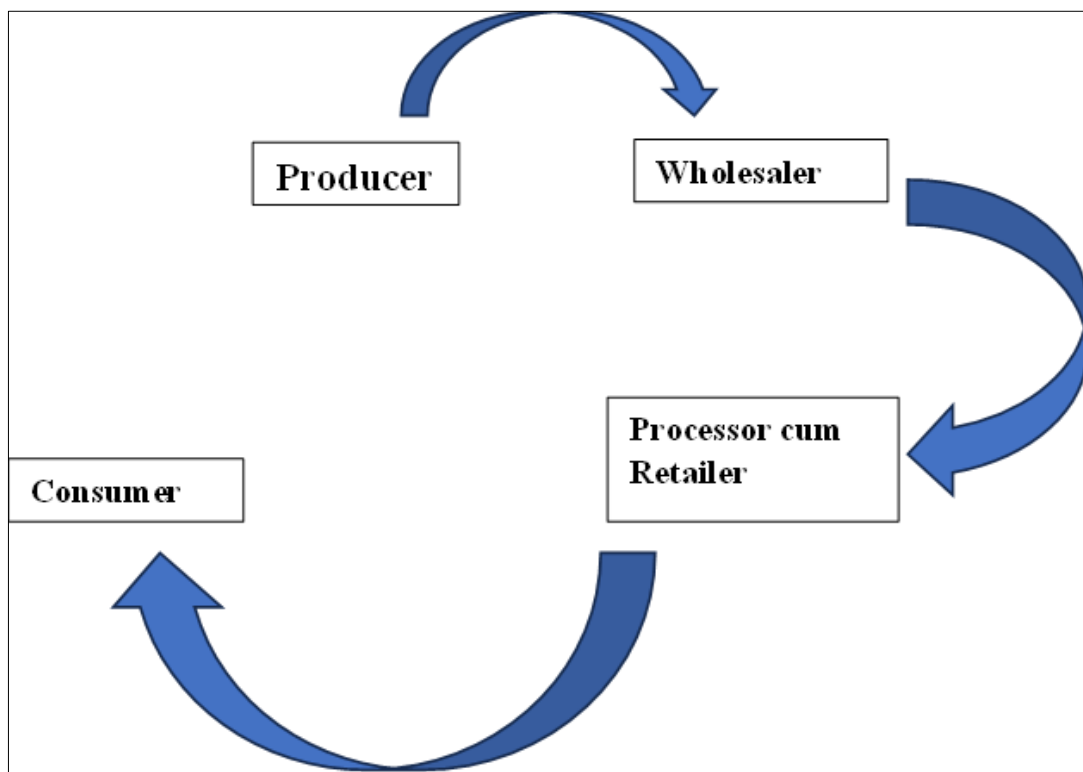


Fig 1: Value Chain Map for Banana

Fig 1 shows the value chain map for the banana. Initially, the banana is being sold by the producer to the wholesaler. Then

the wholesaler sold to processor cum retailer. Finally value added banana viz., chips reached consumer via processor.

Table 1: Value Chain Analysis for (Nendran Chips)

| S.No | Particulars | Amount (in Rs/kg) |
|----------|-------------------------------|-------------------|
| 1 | Producer | |
| a | Gross price received | 15 |
| b | Marketing cost | 1 |
| c | Net price received | 14 |
| 2 | Wholesaler | |
| | Gross price received | 20 |
| | Marketing cost | 2 |
| | Profit Margin | 3 |
| | Marketing Margin | 5 |
| | Sale price | 20 |
| 3 | Processor cum Retailer | |
| a | Purchase price | 20 |
| b | Marketing cost | 2 |
| c | Processing cost | 8 |
| c | Profit Margin | 70 |
| d | Marketing Margin | 80 |
| e | Sale price | 100 |
| 5 | Price paid by the Consumer | 100 |

It could be observed from the Table 1 that the price received by the farmer Rs 15/kg, which constituted about 15percent of the consumer price. The marketing cost incurred by the

wholesaler accounted for about 20 percent of final price and by the processor cum retailer was also twenty percent of final price.

Table 2: Marketing Efficiency of turmeric through Shepherd method

| Market Channel | Value of goods sold | Total marketing cost | Marketing Efficiency |
|-------------------------------|---------------------|----------------------|----------------------|
| Value Added for Nendran chips | 100 | 5 | 19 |

Table 3: Marketing Efficiency of turmeric through Acharya’s approach

| Market Channel | Net Price received by the farmer | Marketing cost + Marketing Margin | Marketing Efficiency |
|-------------------------------|----------------------------------|-----------------------------------|----------------------|
| Value Added for Nendran chips | 14 | 90 | 0.15 |

Table 4: Marketing Efficiency of turmeric by using Calkin’s index

| Market Channel | Sum of profit or margin | Sum of marketing cost | Marketing Efficiency |
|-------------------------------|-------------------------|-----------------------|----------------------|
| Value Added for Nendran chips | 73 | 5 | 15.6 |

The results of marketing efficiency presented in Table 2, 3 and 4 revealed that the marketing efficiency for value addition of Naendran banana is higher.

Conclusion

India is a major exporter of fruits to the world. Banana (*Musa* sp.) is the second most important fruit crop in India next to mango. In the present study, the supply chain of banana has been analysed in the Coimbatore district of Tamil Nadu. The primary data required for the study were collected through personal interview with the help of a comprehensive interview schedule. For the present study totally data has been collected from 90 farmers belongs to Annur block of Coimbatore district in the year 2020-21. Price spread was analysed by sum of average gross margin method and farmers share in consumer rupee. Marketing efficiency was analysed by Shepherd’s method, Acharya’s approach and Calkin index and the analysis revealed that the marketing efficiency was 19, 0.15 and 15.6 respectively. Hence, the study concludes that that the marketing efficiency for value addition of Naendran banana is higher.

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