Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; SP4: 101-104

Dr. R Balaji
Assistant Professor, Dept. of ARM, TNAU, Coimbatore, TN, India

Dr. S. Kumaravel
Assistant Professor, Dept. of Agrl. Economics, APAC, Kalavai, TN, India

Dr. S Manickam
Dean, APAC, Kalavai, TN, India

Dr. U Kumaran
Assistant Professor, Dept. of Computer Science, APAC, Kalavai, TN, India

Correspondence
Dr. R Balaji
Assistant Professor, Dept. of ARM, TNAU, Coimbatore, TN, India

(Special Issue- 4)
International Conference on Food Security and Sustainable Agriculture
(Thailand on 21-24 December, 2018)

Price spread, marketing efficiency and constraints in value chain of tapioca in Tamil Nadu

Dr. R Balaji, Dr. S. Kumaravel, Dr. S Manickam and Dr. U Kumaran

Abstract
An attempt has been made to study the price spread, marketing efficiency and constraints in value chain of tapioca in Tamil Nadu. Primary data were collected from various stakeholders constituting 120 farmers and 80 intermediaries operating in various levels of value chain channel. Six value chain channels were identified in Tamil Nadu. Intermediaries like retailers, wholesalers and Commission agent in the channels. I the market channel of tapioca involves, marketing of raw tubers, marketing of few value added products like starch, sago and wafers. Hence in this study, the major market functionaries were identified, their roles in the transactions and the related marketing cost incurred and margin obtained by these market functionaries were analyzed. In this study, six different market channels were identified. The Channel I pertained to marketing of tubers from farmers to consumers for direct consumption (without processing). Channel II pertained to marketing of sago to consumers (after processing). The Channel III and IV referred to marketing of starch to industrial consumers through different intermediaries. Besides, the Channel V and Channel VI began with the starch processor selling as sago in the former channel and as wafers to consumer in the latter. Monsoon failure was the fore most constraint/problems faced by the farmers. The major problems faced by market intermediaries were high transportation cost, delayed payment at different levels, lack of quality, poor storage facility and high handling cost. Electricity required for processing was the major constraint faced by processors.

Keywords: Price Spread, Marketing Efficiency, Value chain, Tapioca

Introduction
Tapioca (*Manihot Esculenta*) is a perennial vegetable crop and belongs to family Euphorbiaceae and originated in the regions of west-central Brazil. It is now being cultivated all over the world particularly in the Tropical and Sub-tropical regions. Tapioca is a tuber crop of huge economic importance as it is used not only for human and animal food consumption but also as a raw material for various industrial products. Tapioca is cultivated for consumption as raw tuber after cooking and also processed for making starch which is the basic raw material for making of sago, wafers etc. The starch is also used in textile industries, paper mills, gum industry and in leather industry for different purposes. Sago is commonly used for human consumption. It occupies a predominant place among diet of the people in the Northern states of India. At global level, the area under tapioca cultivation is about 18.91 million ha and the production is about 233.79 million tonnes with a productivity of 34.8 tonnes/ha (FAO, 2015). Among the various tapioca cultivating countries, India's share is only about 6 per cent in the total world production of tapioca (NHB, 2015). The other important tapioca producing countries are Brazil, Nigeria, Zaire, Thailand and Indonesia. Tapioca and its products are an important and upcoming trade with high potential both in domestic as well as in export markets. In India, Tapioca is grown in an area of 2.21 lakh hectares with a production of 80.76 lakh tonnes and the productivity is about 36.5 tonnes/ha. Tamil Nadu occupies first place in area and production followed by Kerala. In Tamil Nadu, Tapioca is being cultivated in an area of about 1.34 lakh ha and the production is about 55 lakh tonnes and the productivity is 41 tonnes/ha. Thus Tamil Nadu is a major cultivator of tapioca in the country and influences agricultural economy especially in the western part of Tamil Nadu where this crop is predominantly cultivated. Thus Tamil Nadu is a major cultivator of tapioca in the country and influences agricultural economy especially in the western part of Tamil Nadu where this crop

is predominantly cultivated. The objectives of the study are, to study the existing marketing channels for tapioca in study area, to estimate the price spread and marketing efficiency of tapioca in different channels, to identify the production and marketing constraints faced by tapioca farmers in Tamil Nadu.

Materials and Methodology

A multi-stage random sampling technique was used to select the sample respondents. Based on time and resource constraints of the investigator, in the first stage, among the various districts in Tamil Nadu, Salem and Namakkal districts were selected. The farmers were contacted individually for collection of details on value chain of tapioca with the help of well-structured and pre-tested interview schedule. 120 farmers were selected for this study.Totally 80 intermediaries involved in value chain of tapioca namely, commission agents, wholesalers, retailers, and processors were also considered for the study along with industrial consumers. Garrett ranking, Price spread and Acharya market efficiency measures were used for the analysis.

Results and Discussion

Price spread in marketing of tapioca

The market channel of tapioca involves, marketing of raw tubers, marketing of few value added products like starch, sago and wafers. Hence in this study, the major market functionaries were identified, their roles in the transactions and the related marketing cost incurred and margin obtained by these market functionaries were analysed. In this study, six different market channels were identified as follows. The Channel I pertained to marketing of tubers from farmers to Consumers for direct consumption (without processing). Channel II pertained to marketing of sago to Consumers (after processing). The Channel III and IV refereed to marketing of starch to industrial Consumers through different intermediaries. Besides, the Channel V and Channel VI begin with the starch Processor selling as sago in the former channel and as wafers to Consumer. The flow chart of respective market channels along with the intermediaries are shown in Fig.1. The price spread of these six marketing channels were estimated separately and the results are presented in Tables 1 to 5.

Channel I (Direct Consumption as Tuber)

The Channel I comprised of farmer, Commission agent, Wholesaler, Retailer and Consumer. It could be observed from the table that the net price received by the farmers was Rs.305 per 73 kg bag, which constituted about 72.22 per cent of the Consumer price. The marketing cost incurred by the farmer was Rs.30/bag towards cleaning, handling, transportation
(place value) and the Commission agent earned a margin of Rs.10/bag for selling.

The Wholesaler obtained the tubers through Commission agent and sold to Retailer with a margin of Rs.10/bag. The profit margin of all players were almost equal which constituted about 2.86 per cent of the Consumers 'price at each level of transaction.

The difference between net price received by the farmers and price paid by the Consumer was Rs.350/ 73 kg bag. The price spread is Rs.45 per 73 kgs of tapioca tubers.

Channel II (Tuber to Starch to Sago - through Commission agents)

The Channel II was characterized by the presence of farmer, Commission agent, Processor, SAGO SERVE, Wholesaler, Retailer and Consumer. It could be observed from the 2, that the net price received by the farmers was Rs. 1948.80 for 409 kgs of tuber @ Rs. 4.70 per kg. The tubers were sold through Commission agent. The tubers were then processed by the Processors and the processing and marketing cost accounted for 15.03 per cent of the Consumer price. The Processor could add value to tapioca through sago processing and this accounted for 12.76 per cent of the Consumer's price. The Wholesaler in turn incurred marketing cost which accounted for 3.50 per cent of Consumers' price and marketing cost incurred by Retailer was1.32 per cent of the Consumers' price. Among the various profit margin gained by the intermediaries, margin was highest for sago Processor (2.83 per cent) followed by, Wholesaler (1.51 per cent) and Retailer (0.75 per cent). The price spread in this marketing channel was estimated as Rs.700.24 @ Rs. 1.70 per kg of raw tuber.

Channel III (Tuber to Starch through Commission agents)

The Channel III was characterized by the presence of farmer, Commission agent, Processor, Wholesaler, and Consumer.

The net price received by the farmers was Rs. 1660.80 for 346 kgs of tuber @ Rs. 4.80 per kg. The tubers were sold through Commission agents. The tubers were then processed by the Processors and the processing and marketing cost accounted for 12.64 per cent of the Consumer price. The Processor could add value to tapioca through sago processing and this accounted for 12.06 per cent of the Consumer's price. The Wholesaler in turn incurred marketing cost which accounted for 2.90 per cent of Consumers' price. Among the various profit margin gained by the intermediaries, margin was highest for starch Processor (3.38 per cent) followed by, Wholesaler (0.48 per cent) and Commission agent (0.46). The price spread in this marketing channel was estimated as Rs.411.47 @ Rs. 1.19 per kg of raw tuber.

Channel IV (Tuber to Starch - directly from farmer)

The Channel IV was similar to Channel III except Commission Agent and thus characterized by the presence of farmer, Processor, Wholesaler, and Consumer.

The net price received by the farmers was Rs. 1695.40 for 346 kgs of tuber @ Rs. 4.90 per kg. The tubers were sold directly to Processor. The tubers were then processed by the Processors and the processing and marketing cost accounted for 14.19 per cent of the Consumer price. The Processor could add value to tapioca through sago processing and this accounted for 11.44 per cent of the Consumer's price. The Wholesaler in turn incurred marketing cost which accounted for 3.62 per cent of Consumers' price. Among the various profit margin gained by the intermediaries, margin was highest for starch Processor (3.20 per cent) and Wholesaler (1.37 per cent). The price spread in this marketing channel was estimated as Rs.489.23 @ Rs. 1.41 per kg of raw tuber.

Channel V (Starch to Sago – through starch Processor)

The Channel V began with the starch Processor as the first stakeholder in the chain and was characterized by the presence of sago Processor, Wholesaler, Retailer and Consumer who were sago Consumers.

The net price received by the starch Processor was Rs. 2265.67 for 104.72 kgs of starch @ Rs. 21.63 per kg. The starch was sold directly to starch Processor. The starch was then processed by the sago Processors and the processing and marketing cost accounted for 5.29 per cent of the Consumer price. The sago Processor could add value to starch through sago processing and this accounted for 3.95 per cent of the Consumer's price. The Wholesaler in turn incurred marketing cost which accounted for 1.18 per cent of Consumers' price and marketing cost incurred by Retailer was 0.79 per cent of the Consumers' price. Among the various profit margin gained by the intermediaries, margin was highest for sago Processor (2.76 per cent) followed by, Wholesaler (0.39 per cent) and Retailer (0.20 per cent). The price spread in this marketing channel was estimated as Rs.269.

Channel VI (Starch to Wafers – through Starch Processors)

The Channel VI began with the starch Processor as the first stakeholder in the chain and was characterized by the presence of wafers Processor, Wholesaler, Retailer and Consumer who were sago Consumers.

The net price received by the starch Processor was Rs.250 for 25 kgs of wet starch @ Rs. 10 per kg. The wet starch was sold directly starch Processor. The wet starch was then processed by the wafers Processors and the processing and marketing cost accounted for 26.92 per cent of the Consumer price. The wafers Processor could add value to starch through wafers processing and this accounted for 19.23 per cent of the Consumer's price. The Wholesaler in turn incurred marketing cost which accounted for 11.54 per cent of Consumers' price and marketing cost incurred by Retailer was 1.92 per cent of the Consumers' price. Among the various profit margin gained by the intermediaries, margin was highest for wafers Processor (5.77 per cent) followed by, Wholesaler (3.85 per cent) and Retailer (1.92 per cent). The price spread in this marketing channel was estimated as Rs.270.

Marketing Efficiency

Marketing is said to be efficient if the total marketing margins are higher per unit of the marketing cost. The marketing efficiency in different marketing channels of tapioca was estimated using Acharya's approach and Shepherd's formula. More than one method was used to check the accuracy of the efficiency. The results are presented in Table.1.

Table 1: Marketing Efficiency of Tapioca - Acharya's Approach

S. No	Channels	Price received by the farmers/Starch producer (Rs per kg)		Marketing cost + Marketing Margin (Rs per kg)	Marketing Efficiency
		Farmer	Processor		
1	Direct consumption				
	Channel – I	4.18	-	4.79	0.87
2	Processing into Starch				
	Channel – III	4.80	-	3.36	1.43
	Channel – IV	4.90	-	4.21	1.16
3	Processing into Sago				
	Channel – II Farmer	4.70	-	5.78	0.81
	Channel – V (Starch)	-	21.64	4.53	4.78
4	Wafers				
	Channel – VI (Wet Starch)	-	10.00	5.33	1.88

The results revealed that the marketing efficiency were unique. In case of starch (Channel III and IV) the efficiency was relatively higher in marketing channel III in the both the approaches. For sago manufacturing and further consumption (Channels II and V), efficiency was relatively higher in the channel V, but this channel began with the starch Processor. Channel I (direct consumption for raw tuber) and channel VI cannot be compared with other channels because different key players were involved. Channel I had an efficiency of 0.87 per cent (Acharya's). Channel VI (wafers) had a value of 1.88 per cent of the marketing efficiency. Thus the marketing efficiency estimates though could not reflect the best channels among the six, the methodology however helped to compare the channels given the framework of different players involved.

Marketing Constraints Faced by the Tapioca Farmers and Market Intermediates

During planting and after initialization of tubers, inadequate rain caused reduction in the tuber yield. Price fluctuation was the second major constraints faced by the tapioca farmers. There is no standard price and base price for the tubers. Shortage of labor occurred during cultivation of tapioca was the third major constraint faced by the tapioca farmers. High input cost, non-availability of good quality plant material and wastage of tubers while harvesting were other major constraints faced by the farmers. Electricity required for processing was the major constraint faced by processors. The major problems faced by Commission agents were high transportation cost, delayed payment, lack of quality, poor storage facility and high handling cost. The Retailers expressed high transportation cost, high handling cost, poor storage facility and lack of quality as major problems.

Conclusion

The marketing efficiency were unique. In case of starch (Channel III and IV) the efficiency was relatively higher in marketing channel III in the both the approaches. For sago manufacturing and further consumption (Channels II and V), efficiency was relatively higher in the channel V, but this channel began with the starch Processor. Monsoon failure was the fore most constraint/problems faced by the farmers. During planting and after initialization of tubers, inadequate rain caused reduction in the tubers yield. Price fluctuation, shortage of labor availability, high input cost and non-availability of good planting material (virus-free) and wastage of tubers during harvest were other constraints faced by the farmers. The major problems faced by market intermediaries

were high transportation cost, delayed payment at different levels, lack of quality, poor storage facility and high handling cost. Electricity required for processing was the major constraint faced by processors.

References

1. Acharya SS, Agarwal NL. Agricultural Marketing in India. Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi 2004, 2-396.
2. Christoper, Martin. Logistics and Supply Chain Management. Pitman Publishing Company. London, 1993, 34.
3. Desai VV. Dynamics of Price Spread in Marketing Management. Indian Journal of Agricultural Marketing. 1972, 23-25.
4. Sharma MS, Pathania, Harbans Lal. Value Chain Analysis and Financial Viability of Agro-Processing Industries in Himachal Pradesh. Agricultural Economics Research Review. 2010; 23:515-522.
5. Kiran SC. Marketing Costs and Margins of Agricultural Produce in Tripura", *Agricultural Marketing*, 2005, 4-8.
6. Ramamoorthy K. An Economic Analysis of Production, Marketing and Consumption of Tomato in Coimbatore Region. Unpublished Ph.D. thesis, submitted to Department of Agricultural Economics, Tamil Nadu Agricultural University, Coimbatore, 1982.