Evolving tender coconut sector in Kerala: Need for upgradation in the value chain

Thamban C, Jayasekhar S, Chandran K P, and Muralidharan K
Central Plantation Crops Research Institute, Kasaragod

Introduction

Worldwide there is an increasing demand for tender coconut water as a natural health drink. The nutritive value and medicinal properties of tender coconut are well documented. Tender coconut water, 'the nature's finest health drink' is sure to gain more acceptance among the consumers in the days to come as there is a wide spread campaign against artificially flavoured soft drinks. The practice of harvesting at tender coconut stage has been found to increase the productivity of palms and hence it is more profitable to farmers than harvesting as mature nuts. Studies conducted by Central Plantation Crops Research Institute (CPCRI) and other coconut research institutions have identified suitable coconut varieties for tender nut purpose. Technologies for preservation and processing of tender coconut also are available. Despite the obvious benefits, the potential of marketing opportunities of tender nut is yet to be explored especially in states like Kerala.

Coconut varieties suitable for tender nut purpose

There is varietal difference in the yield and sweetness of tender coconut water. The composition of tender coconut water is influenced by the conditions under which the palms are growing and the mineral nutrition they are receiving. In a study conducted at CPCRI involving 46 coconut varieties, Choughat Orange Dwarf (COD) was found to be the ideal coconut variety for tender nut purpose. On an average, tender coconut water of COD variety has 350 ml coconut water, 7g sugar and 1.5 mg amino acids per 100 ml of water, 20 ppm sodium and 2000 ppm potassium. Dwarf coconut varieties such as Kalparaksha (selection from Malayan Green Dwarf) and Kalpasree (selection from Choughat Dwarf Green) released from CPCRI are also good for tender nut purpose. Ganga bondam is also widely grown as a tender nut variety especially in Andhra Pradesh. Coconut cultivars namely, Chittagangapani and Uddagangapani grown in Tumkur district of Karnataka are also popular coconut varieties for tender nut purpose. Similarly, Kenthali is also a popular tender nut variety grown in Karnataka. The coconut cultivar, Komadan, grown in some parts of central and south Kerala is good for tender nut purpose also. Tall varieties such as Kalpa prathibha, Kalpadhenu, Kalpamitra and hybrid varieities such as Chandra sankara (COD x WCT), Chandra laksha (LO x COD) and Kalpasamrudhi (MYD x WCT) are also good for tender nut purpose.

Technologies for tender coconut processing and packaging

Snow Ball Tender Nut (SBTN)

Snow ball tender nut is a tender coconut without husk, shell and testa which is ball shaped and white in colour. Coconut of 7 – 8 months age is more suitable for making SBTN in which there is no decrease in

Choughat Orange Dwarf

Snow ball machine

quantity of tender nut water and the kernel is sufficiently soft. The main steps involved in the making Snow Ball Tender Coconut are: removal of husk of 7 – 8 month maturity coconut in which the tender kernel thickness should be about 2 - 3 mm, making groove in the shell without breaking the kernel and scooping out the shell. For making the groove easily, a machine has been developed at CPCRI. Snow ball tender nut is sterile, nutritive and is a drink and a snack at the same time. Since there is no refuse after the consumption, there is no scope for littering of the premises. Since the snow ball tender nut can be individually packaged and refrigerated under hygienic conditions, the shelf-life of this product is prolonged up to 15 days. In ambient condition it can be stored for about 8 hours.

Minimal processing of tender coconut

Handling of tender coconuts will be easy if a major part of the husk is removed. But, when partial removal of husk is done the colour of the nut will be changed to brown thereby reducing the attractiveness of the nut. Under normal storage condition, the product also looses its natural flavour more easily than the unhusked nuts. The technology for minimal processing of tender coconut was developed by the Kerala Agricultural University for retaining the flavour and to prevent discolouration. The technology involves dipping partially de husked nut in a solution of 0.5 per cent citric acid and 0.5 per cent potassium meta bi sulphate for three minutes. The product can be stored up to 24 days in refrigerated condition at 5-7% C. By using this technology, tender coconut can be served chilled like any soft drink.

Processing and Packing of tender coconut water

The Coconut Development Board in collaboration with Defence Food Research Laboratory, Mysore has developed the technology for packing tender coconut water in pouches/aluminium cans, which is available to entrepreneurs on payment of technology transfer fee.

Tender coconut marketing

There is tremendous potential for marketing tender coconut water as a natural health drink. Only less than ten per cent of total coconut production in India is used for tender nut purpose. The consumption level of tender coconut in Kerala state is still lower. Tender coconut was never a commercial proposition in Kerala and there was no organized market for the product. However, since the last few years the market for tender coconut is slowly evolving in Kerala state also. Though the supply chain of tender coconut is simple unlike coconut oil, it is highly unorganized. An exploratory study was conducted in Kasaragod district in Kerala state by CPCRI during 2012 to estimate the total consumption of tender coconuts annually at the district level and to analyze the marketing pattern, market structure and behavior of the tender coconut supply chain.

The approximate per day consumption of tender coconut in

Minimal processing

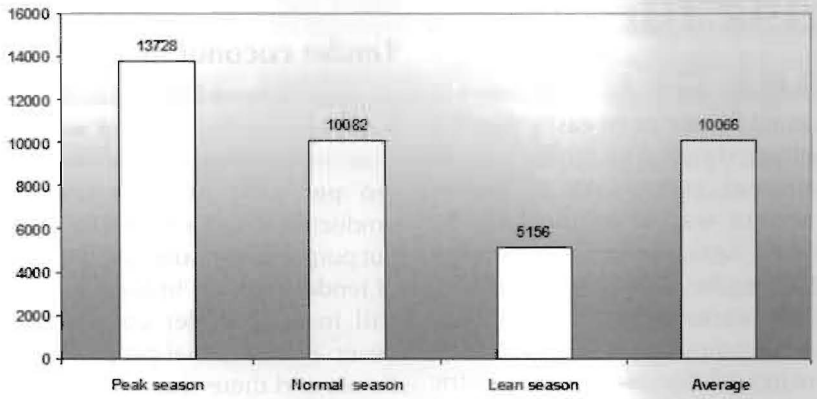


Fig. 1. Consumption of tender coconuts in Kasaragod (nuts/per day)
Notes: Peak season (March- May), Normal (October-February), Lean season (June-September)

the district was estimated to be 10,066 nuts. During the peak season the sales per day have almost touched 14,000 nuts.

The distribution of tender coconut sales across the district exhibits an asymmetric pattern. Kasaragod town and Kumbala put together accounts for around 51 percent of the total sales in the district. In Trikkarippur, which is a major township in the district, not even a single tender coconut outlet was found. While studying the trade patterns of middlemen, it was observed that more than seventy percent of total supply of tendernuts in the 'Kasaragod town' area was provided by one trader who procures the material from coconut gardens in Tumkur, Karnataka. Therefore it is certain that the assured supply of the tendernut in the market is closely associated with demand of the nuts and thereby influences the sales pattern in the district.

Minimally processed tender coconut

The analysis of marketing pattern and marketing efficiency revealed that the producer share in ultimate consumer payment is only 47 percent. Since there is no substantial value addition taking place in the chain, this can not be attributed as a better share distribution. More over, the marketing margin accrued to the middleman is the highest among all stakeholders, which straight away indicates the marketing inefficiency in the supply chain. It was observed that the large suppliers of tender nut were the price leaders of the market, who influences the pricing pattern due to their better bargaining position in the market chain and the local suppliers are the price takers. The individual (vendor) per day sales in the district ranged from 30 nuts to 500 nuts. Lacks of assured market supply, issues of husk disposal, perishability, scarcity of climbers were the major constraints experienced in the sector.

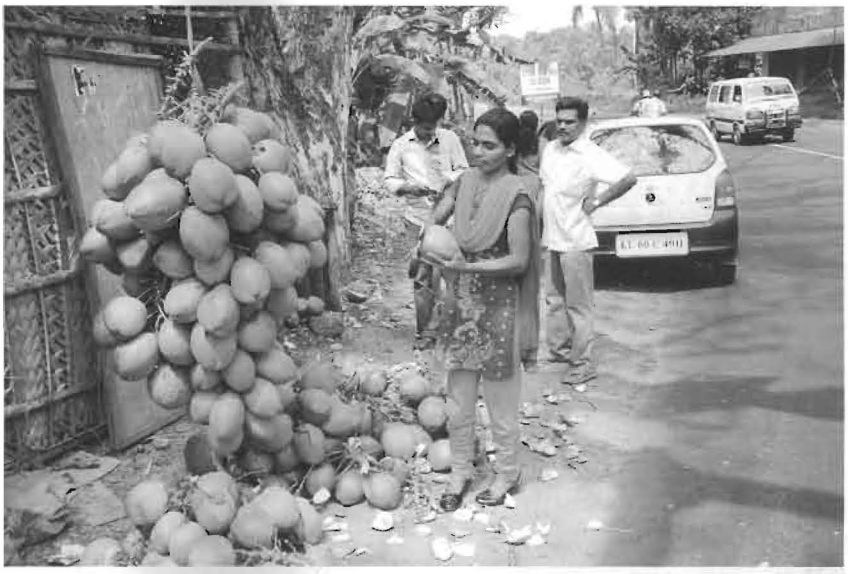
Results of the study clearly indicate the need to formulate and implement suitable programmes for promoting tender coconut production and marketing to benefit coconut growers. Coconut Producers Societies/Federations can facilitate implementation of such programmes for promoting production and marketing of tender coconut with the support of agencies like CDB. Coconut growers are to be encouraged to keep aside an optimum proportion of their coconut production for tender coconut purpose. Awareness programmes are to be organized among farmers regarding the beneficial aspects on tender coconut harvesting.

In this context, it is worthwhile to highlight the successful experiences of coconut farmers and entrepreneurs who are able to enhance their income by utilizing the potential of tender coconut market.

'Chowtara thota' in Meenja village

Dr. D. Chandrasekhar Chowta who had ten years of PG teaching and research experience in the field of Cytogenetics and Radiation Biology in University of Bombay and University of Mysore, left the academic job in 1978 and started farming as a profession. He is having a joint family with his three brothers and one sister. He along with his brothers own the 'Chowtara thota' (Chowta's Farm) in Meenja village of Kasaragod district in Kerala State. Effective utilization of technologies has been made by Dr. Chowta to make farming a very remunerative occupation. Multiple cropping and integrated farming approaches with emphasis on resource recycling have been adopted in Chowta's Farm. Apart from coconut, his farm comprises various other crops like Paddy, Arecanut, Rubber, Banana, Pepper, Nutmeg, Papaya, Jack and vegetable crops. He has also integrated a dairy unit with crop management practices. Banana, pepper and fodder grass are cultivated as intercrops in his coconut garden. Cocoa is raised as mixed crop in his 5 acre arecanut garden. Recently he has introduced the fruit crop Rambutan as a mixed crop in coconut garden. Mangostein also is planted in his farm. Many farmers from Kasaragod district and other parts of Kerala and Karnataka state regularly visit Chowta's farm to get exposure to the innovative farming practices.

Currently compared to other crops like arecanut and rubber, coconut is not that attractive in terms of economics of cultivation, opines Dr. Chowta. However, coconut needs to be supported for its role in ecological conservation, food and nutrition and socio-cultural life of people. Potential of coconut based farming systems in supplementing food and nutritional security has not been fully utilized especially in states like Kerala which face severe limitations to achieve food security by growing food crops like paddy. Dr. Chowta firmly believes that in the near future coconut will definitely be finding an important place in the scheme of things for ensuring food and nutritional security.



Tendernut sales in Kasaragod town

Chowta's Farm has about 1500 coconut trees comprising of different varieties. About 1000 trees are of West Coast Tall variety. 350 trees are of dwarf varieties like Choughat Orange Dwarf, Gangabondam, Malayan Yellow Dwarf and Malayan Orange Dwarf. The farm also has 150 trees of hybrid coconut varieties mainly Chandrasankara (CODxWCT) and Kerasankara (WCTxCOD). Except for the WCT which are about 50 years old, majority of the trees are about 20 years old. Apart from these, during this season Dr. Chowta has planted 400 coconut seedlings of different hybrid and dwarf varieties which are mixed cropped with Rambutan fruit plants. Since Dr. Chowta adopts scientific crop management practices especially integrated nutrient management, irrigation and water management, coconut palms in his farm has high productivity. On an average the WCT trees yield 100 nuts, dwarfs about 100-125 nuts and hybrids about 125 to 150 nuts per palm per year.

A very unique feature of coconut farming in Chowta's farm is that about 90 per cent of coconut yield is harvested for marketing as tender coconuts. For the last fifteen years Dr. Chowta is selling tender coconuts mostly at Meeyapadavu, the nearby small town in his village. When the coconut price was low he was able to get higher price for tender nuts. He was getting around Rs 10-13 per tender nut when the market price for mature coconut was only Rs 4-5 per nut. Dr. Chowta was getting higher price for tender nuts of dwarf varieties like COD, MYD and MOD. Tender nuts of these varieties were sold by Dr. Chowta for Rs 20 per nut, while the consumers were paying about 25 per nut. He feels that there is an increasing trend in tendernut consumption, even in rural areas.

Dr Chowta near a Gangabondam coconut tree

Even in a distant rural locality like Meeyapadavu with only two shops selling tender coconut, on an average 300-400 tender coconuts are sold daily. As the price of mature coconuts has increased substantially, there is scope for selling the tender coconuts at a much higher price than the present prevailing rate. However, for the time being he does not plan to ask for higher rate for tendernuts because he thinks that such a steep increase in price may adversely affect the consumption of tender coconut in the locality.

There is good demand for tender coconuts in the market. However, coconut farmers in Kerala are yet to exploit that opportunity. Dr. Chowta says that coconut farmers still cling on to the conventional thinking which considers harvesting coconut for marketing as tendernut is not desirable as the prestige of the family goes down by selling tender coconuts. Selling tender coconut means the particular farmer is in desperate need of money. Coconut growers are to be made aware about the need to utilize the marketing opportunities in tender coconut sector which essentially fetch them more income.

The major practical problem faced by coconut farmer in selling tender coconut is the lack of skilled manpower for climbing trees for harvesting. Tendernuts are to be harvested at the correct maturity of 6-7 months. Under ripe or over ripe nuts will not fetch good price. Further, climber should be able to harvest the tendernuts carefully without damaging the nuts. For this the bunch has to be lowered to the ground using a rope. This work requires more skill than the usual harvest by clinging on to the tree trunk, stretching and simply cutting the bunch and allowing the nuts to fall on the ground. For harvesting the tender coconuts safely the climber has to climb on to the top crown and tie the rope carefully for lowering the bunch to the ground. Lack of climbers with such skills is a major problem. However, Dr. Chowta does not face this problem since he is having two skilled climbers as regular workers in his farm.

According to Dr. Chowta, the innovative 'Friends of Coconut Tree' programme being implemented by Coconut Development Board is sure to help coconut growers by making available the expertise locally for coconut climbing for harvesting as well as other crop management practices. Another important strategy is popularising cultivation of dwarf varieties of coconut. By using aluminium ladder harvesting can be done in dwarf palms of age up to 25 years.

Availability of quality seedlings of dwarf varieties of coconut is another problem in promoting coconut cultivation for tendernut purpose. According to Dr. Chowta, a decentralized group approach for production and distribution of quality coconut seedlings would be a more viable option rather than depending on research stations and government farms and nurseries for seedling availability. Coconut Producers' Societies and Federations supported by CDB can play an important role in implementing such programmes with the technical support from coconut research organizations like CPCRI. Dr. Chowta has taken the initiative to organize coconut growers of his village. Already nine Coconut Producers' Societies have been registered and got affiliation from CDB. The formation of a Coconut Producers' Federation is in progress.

Though lot of efforts are made by different agencies especially by CDB for promoting value addition in coconut through product diversification, Dr. Chowta laments that not many coconut based processing units exists in his home district, Kasaragod. However, off late some young entrepreneurs have come forward to start such coconut based enterprises. Dr. Chowta is

very much appreciative of Mr. Safwan, a young entrepreneur of 27 years age hailing from a nearby village who has started a processing unit for packaging tender coconut water with the support from CDB.

Safwan-the young entrepreneur from Kadambar village

The processing unit for packaging tender coconut water started by Mr. Safwan is located in Kadambar village near Manjeswar in Kasaragod district. He got the DFRL technology for packing of tender coconut water from Coconut Development Board. The sales of tender coconut water with the brand name 'PUSH' started at the unit four months ago during September 2013. The capacity of the unit is 2500 bottles of 250 ml tender coconut water per day. About 2000 tender coconuts are used as raw material daily. Tender coconuts are collected from Pollachi in Tamil Nadu and also from nearby villages of Kasaragod District. At present the sales is mainly confined to cities like Mangalore and Bangalore. Mr. Safwan is also planning to take up contract manufacturing for a firm from Gujarat and for another firm from Italy. An MBA degree holder Mr Safwan says he started the enterprise on coconut because of his family background in coconut farming. His grand father was a well known coconut farmer of the locality. Dr. Chowta strongly believes that young entrepreneur like Mr. Safwan needs all support so that coconut farming in future would be more remunerative.

Mr Safwan in front of his tender coconut water processing unit

PUSH-Packaged tendernut water from Mr. Safwans factory

Conclusion

There is tremendous potential for marketing tender coconut water as a natural health drink. Awareness programmes are to be organized among farmers regarding the beneficial aspects on tender coconut harvesting, highlighting the successful experiences of coconut farmers and entrepreneurs who are able to enhance their income by utilizing the potential of tender coconut market. Coconut Producers' Societies and Federations supported by CDB can play an important role in implementing programmes for production and distribution of seedlings of dwarf coconut varieties suitable for tender coconut purpose and for processing and marketing of tender coconut. In the present day context in which coconut growers face serious problems due to price fluctuation in the coconut oil market, concerted efforts are required to facilitate production and marketing of tender coconut for enhancing income and employment opportunities from coconut farming.