Exploring Value Addition Opportunities in Tamil Nadu Amidst Decreasing Coconut Prices

Shree Charan M., Jayanthi M. and V. Vijay Prabha
Dept. of Agriculture, KSAH, KARE, Krishnankoil, India

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Abstract: Tamil Nadu, known for its rich agricultural heritage, has long been a significant contributor to India's coconut production. However, recent years have seen a drop in coconut prices due to traditional practices and limited value addition, posing substantial challenges to the region's coconut industry's economic survival. This study investigates the potential for value addition in Tamil Nadu in response to decreases in coconut prices, with an emphasis on improving the economic sustainability of coconut cultivation. The purpose of this study is to analyse and propose strategies for maximizing the economic potential of coconuts in the state. According to the findings of this survey, respondents have a limited awareness of value-added products, particularly coconut oil, copra, and thatches. Unfortunately, most coconut growers are unaware of a wide range of value-added goods, which presents a huge barrier to improving their livelihoods. This study also showcased the scope of value addition in coconut and highlighted the constraints, technological needs, and suggestions perceived by the coconut growers.

1 INTRODUCTION

The coconut palm, renowned for its versatility, thrives in numerous countries situated within the equatorial region. In the cultural and agricultural history of India, the coconut palm, often referred to as *Kalpavriksha*, has been cultivated since ancient times (Mandal and Mandal, 2011). According to International Coconut Community (ICC) Statistical Year Book 2021, Coconut is grown in more than 93 countries in the world in an area of 12 million hectares, with an annual production of 66,674 million nuts (Coconut Development Board, n.d.a.). India is the world's largest coconut-producing country, accounting for approximately 31.45% of total output in 2021-22, with a production of 19,247 million nuts. More than 12 million people in India rely on the coconut palm for food security and a living. Coconut productivity at the national level was 9,123 nuts per hectare in 2021-22, making it one of the highest in the world (Indian Trade Portal,. n.d.). Despite being a significant global producer of coconuts, India allocates more than 50% of its annual coconut production, which stands at 15.84 billion nuts, for domestic consumption in its raw form, primarily for culinary and religious purposes. A substantial portion, 35% of the total production, is dedicated to the production of copra. Additionally, 11% is earmarked for tender nuts, 2% for seed purposes and a mere 2% is utilized for value addition and industrial applications (Muralidharan, & Jayashree, 2011). This allocation emphasizes the importance of enhancing value in the coconut industry to generate increased income for coconut farmers.

Tamil Nadu, with an annual coconut production of 5,091.83 million nuts across 0.44 million hectares (Coconut Development Board,n.d.b), is currently grappling with a decline in coconut prices, adversely impacting the livelihoods of its farmers. Small farms make up a sizable portion of all coconut holdings, and current agricultural trends pose new challenges to their viability and survival. These challenges include low and fluctuating produce prices, rising input costs, low productivity due to root wilt disease and pests like rhinoceros beetle, red palm weevil, eriophyid mite, etc. The current procurement price of coconuts is ₹6 per nut, with ₹2 allocated for harvesting costs (Ramesh, 2023). To meet these challenges, it is necessary to improve on-farm income by popularising farm-level processing for value addition. Small farms must find innovative ways to survive in today's competitive environment. These include more diversified enterprises, value-added activities, and product and market development (Tubine & Hanson,

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2006). The value-added products including Copra, coconut oil, desiccated coconut (DC), coconut cream, coconut milk, virgin coconut oil, spray-dried coconut milk powder, coconut chips, cream, nata de coco, coconut jam and young tender coconut are the convenience coconut products, and some by-products are coconut fibre, e.g. coir and coir products, mats, matting, brushes, brooms and rubberised coir mattresses, and shell products, e.g. charcoal, activated carbon, etc.

This study presented here examines value addition at the farm level in coconut, including direct marketing with little processing, using tender nuts as a substitute for other produce, processing coconut oil and copra at the primary level, and producing food products, virgin coconut oil, and oil-based products as a solo or group endeavour at the secondary level of processing. The objectives of this study are the following:

- To analyse the socio-economic characters of coconut growers.
- To assess the awareness on value-added products from coconut among coconut growers.
- To find out the constraints, technological needs and suggestions.

2 METHODOLOGY

In southern Tamil Nadu, from Tenkasi district, Tenkasi block was purposively chosen for this study. According to the statistical handbook 2021-22 of Tenkasi district, coconut is being cultivated in 11,895 hectares. Coconut is cultivated under both irrigated and unirrigated condition with an annual production of 1,297 lakh nut and productivity of 10904 nuts/Ha (Government of Tamil Nadu, 2022). Based on coconut productivity, three villages from the Tenkasi Block were chosen and 60 coconut growers in those villages were randomly selected and primary data was collected through face to face interview. Ayiraperi, Mathalamparai, Pattakuruchi, were the villages selected for this study. A total of 10 independent variables, including age, gender, educational status, family type, occupational status, farm size, farming experience, experience in coconut farming, extension agency contact, and market perception, were selected to assess the socio-economic status of coconut growers. An additional independent variable was also established to determine the extent of awareness among coconut growers in the value addition of coconut.

3 RESULTS AND DISCUSSION

Table 1 presents the description of the socio-economic status of coconut growers. In the provided data, nearly half of the surveyed individuals, accounting for 46.70%, belonged to the middle-aged category, while 33.30% were classified as old and 20% fell into the young age group. The gender distribution among respondents showed that 76.70% were male and the remaining 23.3% were female. Educational levels varied, with 33.3% having completed higher secondary education, 16.6% having primary or graduate education, 13.3% having secondary education, and 20% being illiterate. Family size analysis indicated that 60% of participants had a small family, 26.60% had a medium-sized family and 13.30% had a large family.

Regarding occupation, 40% of respondents were engaged in agriculture and dairy, while 26.60% were exclusively involved in agriculture and 23.30% participated in both agriculture and labour activities. Additionally, 10% pursued occupations outside of agriculture. Farm sizes varied, with 26.7% being classified as marginal 46.67% as small, 20.00% as medium and 6.67% as large farmers. Examining extension agency contact, the majority (73.30%) had low levels followed by 23.30% with medium levels and only 3.3% with high levels of contact.

Table 1. Socio-economic status of coconut growers.

S. No.	Characters	Frequency	Percentage
1.	**Age**		
	Young (30 years)	12	20.00
	Middle (30-50 years)	28	46.70
	Old (above 50 years)	20	33.30
2.	**Gender**		
	Male	46	76.70

	Female	14	23.30
3.	**Education status**		
	Illiterate	6	10.00
	Functionally literate	6	10.00
	Primary	10	16.60
	Secondary	8	13.30
	Higher secondary	20	33.30
	Graduate	10	16.60
4.	**Family type**		
	Nuclear	36	60.00
	Joint	24	40.00
5.	**Occupational Status**		
	Farming alone	20	33.33
	Farming and wage earner	24	40.00
	Farming and business	14	23.33
	Farming and services	2	03.33
6.	**Farm Size**		
	Marginal	16	26.7
	Small	28	46.67
	Medium	12	20.00
	Large	4	6.67
7.	**Farming experience**		
	Low (Upto 10 year)	20	20.00
	Medium (11-20 years)	28	46.70
	High (Above 20 years)	12	33.30
8.	**Farming experience in coconut**		
	Low	20	20.00
	Medium	28	46.70
	High	12	33.30
9.	**Extension agency contact**		
	Low	44	73.30
	Medium	14	23.30
	High	2	3.30
10.	**Market perception**		
	Low	18	70.00
	Medium	42	30.00
	High	0	0

Table 2. Awareness on value added products from coconut among farmers.

S. No.	Particulars	Frequency	Percentage
1.	**Coconut Kernal Based Product**		
	Virgin coconut oil	12	20
	Desiccated coconut	0	0
	Coconut milk	0	0
	Coconut skimmed milk	0	0
	Spray Dried Coconut Milk Powder	0	0
	Coconut cream	0	0
	Coconut chips	0	0
	Coconut oil	60	100
	Copra	60	100
2.	**Coconut Water Based Products**		

	Tender coconut water	54	90.00
	Vinegar	0	0
	Coconut squash	0	0
	Coconut jelly	0	0
	Nata-de-coco	0	0
3.	Coconut Inflorescence Based Food Products		
	Neera	34	56.67
	Coconut jaggery	6	10
	Coconut palm sugar	0	0
	Coconut flower syrup	0	0
4.	Coconut Convenience Food Products		
	Coconut Biscuits	0	0
	Coconut Candy	0	0
	Coconut Chocolate	0	0
	Coconut burfi	32	53.30
Non-edible coconut products			
1.	Coconut Shell Based Products		
	Coconut shell powder	0	0
	Coconut shell charcoal	6	10.00
	Activated carbon	2	3.33
2.	Coconut Leaf Based Products		
	Thatches	60	100
	Brooms	60	100
3.	Coconut Fibre Based Products		
	Handicrafts	0	0
	Ropes	36	60.00
	Coir pith	36	60.00

Table 2 reveals that respondents have a low understanding of value-added products, which are mostly focused on coconut oil, copra, and thatches. Unfortunately, most of the coconut growers are unaware of varied range of value-added products, posing a significant obstacle to improving their livelihoods. This deficiency could be attributed to a lack of access to scientific knowledge and insufficient value-addition training programmes for coconut growers, highlighting the critical need for comprehensive educational initiatives to equip farmers with the skills and information they need to practise sustainable agriculture.

Limited literacy rates and insufficient interaction with extension organisations may explain lack of awareness of a wide range of value-added products. Since more than half of the respondents are marginal or small farmers, they might not be able to proceed with value addition in coconut. This circumstance highlights the importance of focused initiatives to improve education, boost extension services, and provide small-scale farmers with information about a variety of value-added goods.

3.1 Constraints Perceived by Coconut Growers

Through the qualitative method, it was found that coconut-growing farmers from the selected villages face significant hurdles, including high market price fluctuations, exploitation by intermediaries, insufficient technical knowledge and limited access to training on value addition techniques in coconut, small size of holding restrict them from processing their produce.

3.2 Suggestions to the Coconut Growing Farmers

The study reveals that a critical obstacle faced by participants is the inadequate value addition to their agricultural produce. To address this issue, recommendations include establishing facilities for processing, packaging, labelling and marketing. It is advised to regularly update scientific knowledge in coconut processing to keep farmers informed. Additionally, efforts should be directed towards

popularizing coconut products among the public. The promotion of farmers' producer organizations is suggested for collective empowerment, and subsidies for processing and marketing value-added coconut products could serve as incentives, fostering a more sustainable and lucrative agricultural ecosystem.

4 CONCLUSION

Despite the problems faced by reduced coconut pricing in Tamil Nadu, there are significant opportunities for coconut value addition. Diversifying coconut-based products, investing in processing technologies, and encouraging stakeholder participation will not only mitigate the impact of falling prices, but will also develop a robust and thriving coconut industry. By pursuing these opportunities, Tamil Nadu can convert its coconut sector into a vibrant and sustainable source of revenue for farmers while satisfying changing consumer expectations. Embracing value addition activities is critical for realising the full economic potential of coconuts and maintaining the region's agricultural community's long-term success.

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