

ISSN (P): 2347-8276
ISSN (O): 2347-2847



IJCBS

ACADEMIA



INTERNATIONAL JOURNAL OF

COMMERCE AND BUSINESS STUDIES

Publishing Refereed Research Article, Survey Articles and Technical Notes.



Journal ID: 9363-9848

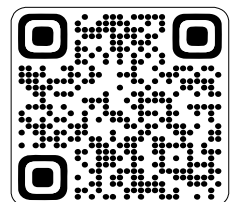


IAEME Publication

Chennai, India

editor@iaeme.com / iaemedu@gmail.com

<https://iaeme.com/Home/journal/IJCBS>





INNOVATIVE VALUE ADDITION STRATEGIES IN COCONUT PROCESSING: ENHANCING ECONOMIC SUSTAINABILITY AND MARKET COMPETITIVENESS

MS. A. Soundharya

Assistant Professor, Department of Commerce BPO, Holy Cross College (Autonomous),
Tiruchirappalli-02, Tamilnadu, India.

DR. V. Josephine Lourdes De Rose

Assistant Professor, PG & Research Department of Commerce, Holy Cross College
(Autonomous), Tiruchirappalli-02, Tamilnadu, India.

ABSTRACT

This study explores innovative value addition strategies in coconut processing to enhance economic sustainability and market competitiveness. As one of India's most versatile crops, coconuts contribute significantly to the tropical agricultural economy, particularly in southern states like Tamil Nadu. The research highlights the growing demand for value-added coconut products driven by consumer preferences for health-conscious and sustainable goods. The study identifies challenges such as water scarcity, soil degradation and climate change, which impact long-term sustainability. It emphasizes the adoption of advanced technologies like automation and IoT to improve processing efficiency and quality control. By promoting partnerships between farmers, processors and research institutions, the coconut industry can address market demands and foster innovation. The findings conclude that diversification into high-value coconut-based products and eco-friendly practices can boost profitability, create

employment and support environmental sustainability. These strategies position the coconut industry to meet global demand while contributing to a greener future.

Keywords: Coconut Marketing, Sustainability, Market Competitiveness.

Cite this Article: A. Soundharya, V. Josephine Lourdes De Rose. (2025). Innovative Value Addition Strategies in Coconut Processing: Enhancing Economic Sustainability and Market Competitiveness. *International Journal of Commerce and Business Studies (IJCBS)*, 7(2), 65-75. DOI: https://doi.org/10.34218/IJCBS_07_02_005

1. INTRODUCTION

India's economy relies heavily on agriculture, which supports a significant portion of population and makes a large contribution to the GDP of the country. With an extensive history of agriculture, India is a major producer of rice, wheat, pulses, sugarcane, cotton, coconut and spices. The coconut, also known as the "tree of life," is a valued and adaptable crop that is important to the tropical agricultural economy. India is one of the largest producers of coconuts globally, with the crop being grown in states such as **Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Odisha**. These areas provide the perfect climate for growing coconuts because of their warm, tropical temperatures, high humidity and evenly spread-out rainfall, all of which support the healthy growth of coconut trees. Tall coconut varieties are grown in large quantities in Tamil Nadu, although hybrid forms with superior yields are also frequently cultivated. Because of many climatic zones, soil types and cropping patterns, the sector is quite diversified. Kharif and Rabi are the two main agricultural seasons. The coconuts cultivated in Tamil Nadu are used to produce copra (dry coconut), coconut oil, coconut milk, coconut water and food items made from coconut. The market for products produced from coconuts is growing rapidly as a result of shifting consumer tastes towards sustainable, natural and nutritious products.

Promoting value addition in coconut agriculture is another area of focus. Coconut cultivation is very important, especially in southern states where it is essential to augment value-added businesses which support the development of rural communities. Value addition is the process of converting raw coconut into valuable goods that are used in a variety of sectors, including industrial uses, cosmetics, food & beverage and medicines. In addition to generating new revenue streams, innovative methods of processing coconuts satisfy the desires of consumers worldwide for goods that promote health, wellbeing and environmental

sustainability. The creation of products like coconut flour, virgin coconut oil, activated carbon and coconut-based biofuels demonstrates how value addition can promote economic expansion in areas that produce coconuts. Tamil Nadu's emphasis on producing these value-added products is increasing its coconut farming earnings while also creating new employment opportunities in the processing industry. The Coconut industry will face challenges such as water scarcity, soil degradation and climate change, which could impact its long-term sustainability. To address these challenges, there will be a growing focus on sustainable practices that will ensure the continued success of coconut cultivation while protecting the environment and supporting the welfare of farmers. The purpose of this study is to investigate the different innovative value-adding techniques used in the processing of coconuts, evaluate their effects on economic sustainability, and find ways to make coconut-based goods more competitive on the international market.

2. REVIEW:

1. Salvatore Parisi, Carmelo Parisi and Suni Mary Varghese (2024), intended to provide contemporary perspectives on value addition in relation to beverages made from coconuts. This study has primarily considered five distinct value addition drivers that coconut growers, harvesters and other stakeholders may directly control namely sustainability, sensory aspects, packaging, durability and size possibilities. The investigation's findings showed the important added value of a number of products, including packaged tender coconut water, frozen and concentrated coconut water, bottled mature coconut water, coconut water beverages, coconut WCF, coconut FWFL, coconut PSM, syrups, GPSM and coconut jaggery. Policies pertaining to sustainability and environmental friendliness might provide a challenge for goods that are manufactured similarly to beverages made without coconut.

2. Wawan K. Tolinggi *et al.*, (2022), attempted to investigate the co-creation of knowledge in light of the different viewpoints of young and experienced farmers. The findings showed that the experienced farmers prioritised long-term coconut tree revitalisation. However, young farmers concentrated on integrating coconut trees with annual plants for short-term uses, particularly for virgin coconut oil and innovative products derived from the application of foreign technologies. This study focused on categorising the two groups of coconut farmers' orientations with respect to agricultural, processing and marketing factors. This leads to the co-creation of knowledge and its relationship to the sustainability of coconut agriculture.

3. H. Mary Henrietta, K. Kalaiyarasi and A. Stanley Raj (2022), intended to provide knowledge on coconut cultivation and its advantages. The findings showed that the life span of coconut trees has been affected by a changing environment and an increase in insect infestations. Coconuts are used to make oils and even craft items from their shells. Brooms have been made from coconut trees and hardwood flooring, furniture and building materials for homes are all made from wood. In order to increase output, farmers must be aware of the enormous demand for items created from coconuts across the world.

4. V. Pragadeesh *et al.*, (2022), attempted to examine how coconut growers in the Coimbatore district market their products. A simple random sampling approach was used to choose a sample size of 120 coconut-growing farmers. The majority of the respondents surveyed used intermediaries to sell their produce. Planners and policymakers at the state and district levels definitely want to take note of this in order to set up plans for marketing the items at the highest possible price.

5. Hermiza Mardescia *et al.*, (2021), analyses value-additions and calculation of production cost in the production of processed coconut product. This study is only focused on coconut oil, coconut sugar, and shell charcoal. Value-added analysis and processing cost computations are based on labour expenses, work capacity, fixed and variable costs, and other data. The findings showed that the production costs for processing charcoal are IDR 472.92 per kg, processing coconut oil is IDR 14,939.13 per kg, and processing coconut sugar is IDR 8,535.07 per kg. The firm is profitable since the cost of producing the three items is significantly lower than the selling price.

6. Geraldo Stachetti Rodrigues, Carlos Roberto Martins, Inácio de Barros (2018), intended to analyse the impact on a group of reference coconut-producing farms that follow a gradient in terms of technological adoption and ecological intensification techniques. The results revealed that landscape ecology, environmental quality, sociocultural values, economic values, and management and administration are the five components of sustainability. The findings supported the importance of produce diversity as a means of integrating technology and they showed a positive correlation with greater sustainability indices across the board.

7. Sathana, V (2017), intended to identify the major issues and difficulties facing Jaffna district's coconut-based productions in terms of value addition. The results revealed that there are two types of problems and challenges related to value additions: internal problems and external problems. Internal problems are inadequate raw material, traditional Production methods, poor layout and factory facilities, inadequate capital labour availability, etc., External

problems are political and legal problems, economic and socio-cultural challenges, technological problems, green environmental problems, etc.

8. Dr.S.M.Yamuna and Ms.R.Ramya (2016), intended to determine the issues with coconut marketing and farming. A convenient sampling method is used to gather primary data from 250 farmers using a standardised questionnaire. The results revealed that the extremely low consumer price for coconut cultivators makes it abundantly evident that the farmers are not benefiting from the marketing system. The study suggested that the government may promote coconut production if it takes the required actions to control the marketing of coconuts and provides funding for the creation of value-added goods from core products.

9. M. Kalimuthu, Dharani. S (2016), intended to ascertain the marketing issues faced by coconut growers. The results revealed that the majority of growers are eager to increase their coconut production, however there are also disadvantages including unanticipated losses and inadequate price fluctuations. The study found that government action and farmer association improvement are crucial for resolving the issues that coconut growers encounter in marketing.

10. Sangamithra *et al.*, (2013), attempted to provide a wide range of food and non-food items that can be made from coconut. Market shifts towards value-added goods like coconut milk, coconut cream, coconut vinegar, etc., are highly desired. Wood, shell, husk and other materials may be used to create a wide variety of handcraft products, which enhance small businesses' revenue. Large-scale commercial use requires the items to be manufactured, packaged and delivered to the market in a way that satisfies customer needs. All efforts should be made to promote the value-added products of coconut at the national and international levels because of its numerous culinary, healthcare, cosmetic and industrial applications.

3. VALUE ADDED PRODUCTS OF COCONUT

3.1 HAUSTORIUM BASED PRODUCTS:

3.1.1 Coconut Haustorium Candy:

Coconut Haustorium Candy is a distinct and flavourful delicacy created from the haustorium, which is the soft, spongy and edible portion of a sprouting coconut, also known as the coconut apple. It is high in minerals, vitamins and bioactive substances, which promote digestive health and immune function. The demand for coconut haustorium candy is driven by several factors in the **health-conscious** and **natural food** markets. As consumers increasingly move toward healthier, **plant-based** snacks, coconut haustorium candy offers a unique

nutrient-rich alternative to conventional sweets. Proper packaging is necessary to keep the candy from being destroyed or losing its texture. Airtight, moisture-resistant packaging, such as vacuum-sealed bags or plastic containers, keeps the product fresh during transportation. Transportation costs vary depending on distance, package type, volume and shipment mode. The primary ingredient, haustorium, comes from coconuts. While coconuts are quite affordable, removing and preparing haustorium might need additional labour and time. The availability of coconuts can vary seasonally, affecting prices.

3.2 Haustorium Flakes

Haustorium Flakes are thin, crispy slices or shreds made from the haustorium (coconut apple) that grows inside sprouted coconuts. The haustorium is a nutrient-rich spongy tissue that, when processed, becomes a delicious and nutritious snack. These flakes are often dried or oven-baked to preserve their natural flavours, resulting in a light, crisp texture that is ideal for snacking or as an ingredient in a variety of meals. Haustorium flakes are high in dietary fibre, antioxidants, and minerals including potassium and magnesium, which are beneficial to heart and muscle health. These flakes are also low in calories and fat, making them a healthy snack choice for people following a balanced diet. They should be kept in a cold, dry area to avoid moisture absorption, which might alter their texture and flavour. Long-term storage is often best achieved in cool warehouses or ambient storage settings. Transportation costs vary depending on distance, package type, volume and shipment mode.

4. INFLORESCENCE BASED PRODUCTS:

4.1 Coconut aminos

Coconut aminos is a liquid flavouring made from sap from the coconut tree's inflorescence (flower buds). Demand for coconut aminos is increasing as consumers seek natural, healthy alternatives to traditional condiments. Coconut aminos can be used for soy sauce in any recipe. The **fermented** and **aged** nature of coconut aminos requires careful handling during transportation. Packaging needs to ensure the product remains **sealed** and **unspoiled** during transit. Additionally, some brands choose to use **glass bottles**, which are more fragile and can increase shipping costs.

4.2 Coconut flower nectar:

Coconut flower nectar, commonly known as coconut sap or toddy, is a naturally sweet, nutrient-rich liquid that comes from the flower buds of the coconut tree. It is gathered by

tapping the coconut blossoms and after fermentation, may be used to make goods such as coconut sugar and vinegar. This nectar is becoming increasingly popular in worldwide markets because of its natural, unprocessed features and health advantages, such as its high mineral content, which includes potassium, magnesium and iron. With rising consumer awareness of the advantages of coconut products, the market for coconut flower nectar is growing in both domestic and international markets, with distribution via health food stores, online platforms, and speciality merchants.

5. KERNEL BASED PRODUCTS:

5.1 Coconut Milk:

Coconut milk is a creamy liquid derived from the grated flesh (kernel) of mature coconuts.

The process involves grating the white flesh of a coconut and then squeezing it to extract the liquid, which varies in consistency depending on the method used. The initial press of shredded coconut produces thicker coconut milk, whereas repeated water extractions produce thinner coconut milk. As the market for plant-based milk substitutes grows, coconut milk is gaining popularity in worldwide markets, being used not only in food but also in beauty and personal care products such as shampoos, lotions and creams.

5.2 Coconut Cream:

Coconut cream is a creamy, luxurious liquid made by grating ripe coconut flesh. It is similar to coconut milk but contains more fat, giving it a thick and creamy consistency. Typically, coconut cream is made by extracting the liquid from shredded coconut flesh with less water, yielding a more concentrated form of the coconut's inherent oils and solids. It is also popular in the beauty and personal care industries for its moisturising and nourishing characteristics, particularly in shampoos, lotions, and skin creams.

5.3 Desiccated Coconut:

Desiccated coconut is finely shredded coconut meat that has been completely dried in order to eliminate the majority of its moisture content. It is made mainly from the white flesh (kernel) of mature coconuts and is dried to preserve the coconut for a longer shelf life. Desiccated coconut comes in a variety of grades, including fine, medium and coarse, making it suitable for a wide range of culinary uses. Export markets also play a crucial role in meeting

the growing global demand for desiccated coconut, particularly as consumers seek more natural and organic alternatives in their diets.

5.4 Coconut Chips:

Coconut chips are a popular snack made from thinly sliced coconut meat that is either dried or baked. They are marketed as a healthy alternative to traditional snacks, boasting benefits like being rich in healthy fats, fibre and antioxidants. The cost of making coconut chips varies based on the grade of the coconuts used and the type of processing.

5.5 Coconut Ice Cream:

Coconut ice cream is a dairy-free frozen dessert made primarily from coconut milk, offering a creamy texture and a rich coconut flavour. The cost of coconut ice cream is typically higher than regular ice cream due to the use of coconut milk, which is more expensive than dairy and the need for additional flavouring or sweeteners like sugar or coconut nectar.

5.6 Coconut Flour:

Coconut flour is a gluten-free, high-fiber flour made from dried and ground coconut meat, typically produced as a by-product of coconut milk or coconut oil production. Coconut flour is made by first extracting coconut milk or oil from the meat of mature coconuts. The remaining solid coconut meat is then dried and ground into a fine powder. It is high in fiber, particularly soluble fiber, which helps support digestive health and regulate blood sugar levels. The cost of coconut flour is generally higher than that of wheat flour due to the labour-intensive production process, including the extraction of coconut milk or oil and the drying and grinding of the coconut meat.

6. WATER BASED PRODUCTS:

6.1 Tender coconut water:

Tender coconut water is a clear, naturally sweet liquid found inside young green coconuts that is valued for its refreshing flavour and moisturising characteristics. It is low in calories, high in electrolytes such as potassium, sodium and magnesium and acts as a natural substitute for sugary or processed beverages. It is commonly taken straight from the coconut, but it is also packaged and promoted as a health drink across the world.

6.2 Coconut water ice cubes:

Coconut water ice cubes are a simple and delightful way to add coconut water's natural sweetness and hydrating benefits to drinks and foods. Make these by pouring fresh or bottled

coconut water into ice cube trays and freezing until firm. These ice cubes may be used to chill beverages like smoothies, juices, cocktails, or plain water without diminishing the flavour.

6.3 Coconut water vinegar:

Coconut water vinegar is a natural, fermented product made from nutrient-rich water of coconuts. The fermentation process involves converting the sugar in coconut water into acetic acid through the action of beneficial bacteria and yeast, resulting in a tangy, slightly sweet vinegar. It is a versatile product used as a healthier alternative to traditional vinegars in cooking, salad dressings and marinades.

6.4 Coconut water jelly:

Coconut water jelly is a delightful and hydrating dessert made by combining coconut water with a gelling agent like agar-agar or gelatin. Known for its refreshing taste and subtle sweetness, this jelly retains the natural flavour and nutrients of coconut water, including electrolytes and vitamins. It's often enhanced with additions like fruit chunks, mint leaves, or a splash of lime juice for extra flavour.

7. DISCUSSION:

Global demand for coconut-based goods has steadily increased in recent years, driven by consumer awareness of health and environmental benefits. The coconut industry has tremendous potential for growth and sustainability, because of rising demand for coconut-based goods in a variety of industries, including food, drinks, cosmetics and even bioplastics. Traditional coconut products like copra, coconut oil and dried coconut can also be transformed into high-value items like coconut water, coconut milk, coconut-based drinks and cosmetics.

Moreover, coconut-based food products such as coconut flour and coconut milk are gaining popularity, particularly in the gluten-free and dairy-free segments. As consumers increasingly turn toward plant-based and gluten-free diets, these products offer processors the ability to enter lucrative niche markets. Producing and marketing these value-added goods can assist farmers and processors gain access to premium markets while also increasing profit margins. As global awareness of environmental issues and the impact of climate change grow, consumers are increasingly seeking products that align with their values, particularly those that are sustainably sourced and eco-friendly. One of the most potential areas of innovation in the coconut processing sector is the creation of bio-based packaging options. The need for biodegradable materials is increasing as the globe moves towards more sustainable and

environmentally friendly goods. Coconut husks, shells and other by-products that are generally wasted can be converted into environmentally friendly packaging materials. The introduction of advanced technologies such as automation, Internet of Things (IoT), and Artificial Intelligence (AI) in coconut processing can improve efficiency, quality control, and traceability. Automated systems can streamline the extraction of oil and milk, reducing labour costs and increasing the consistency of the products. The coconut by-products can not only reduce waste but also create new product lines that cater to the rising consumer demand for eco-friendly alternatives.

8. CONCLUSION:

The implementation of innovative value addition strategies in coconut processing offers a transformative path to enhance both economic sustainability and market competitiveness. By diversifying into high-demand items such as coconut water, coconut-based cosmetics and food alternatives, the business can meet changing customer expectations for health-conscious and eco-friendly products. The strategic use of coconut waste for creating sustainable by-products, along with advancements in processing technologies, presents opportunities for increased efficiency and profitability. Additionally, partnerships between farmers, processors and research institutions are essential to driving innovation and improving product development, ensuring a competitive edge in the market. As the global demand for organic and sustainable products rises, the coconut industry is poised to play a pivotal role in shaping a greener, more sustainable future for both producers and consumers. Moreover, aligning with ethical sourcing and sustainability trends strengthens brand positioning and fosters long-term growth. Ultimately, these value-added strategies enable the coconut industry to thrive, meet global demands and contribute to environmental and economic sustainability.

REFERENCES:

- [1] Parisi, S.; Parisi, C.; Varghese, S.M. Value Addition and Coconut-Based Beverages: Current Perspectives. *Beverages* 2024, 10, 14. <https://doi.org/10.3390/beverages10010014>.
- [2] Tolinggi, Wawan K., Salman, Darmawan, Rahmadanih, and Iswoyo, Hari. "Farmer regeneration and knowledge co-creation in the sustainability of coconut agribusiness in Gorontalo, Indonesia", *Open Agriculture*, vol. 8, no. 1, 2023, pp. 20220162. <https://doi.org/10.1515/opag-2022-0162>

- [3] H. Mary Henrietta and K. Kalaiyarasi, A. Stanley Raj (2022), “Coconut Tree (*Cocos nucifera*) Products: A Review of Global Cultivation and its Benefits”, *Journal of Sustainability and Environmental Management (JOSEM)*, Vol. 1, No. 2 (2022), 257 – 264, p-ISSN 2822-1729, e-ISSN 2822-1737.
- [4] V. Pragadeesh *et al.*, (2022), “An Analytical Study on Marketing Behaviour of Coconut Growers in Coimbatore District”, *Asian Journal of Agricultural Extension Economics & Sociology*, DOI: 10.9734/ajaees/2022/v40i1031163.
- [5] Hermiza Mardescia *et al.*, (2021), “Analysis of Value-Added and Calculation of Production Cost in the Production of Processed Coconut Product”, *International Journal on Advanced Science Engineering and Information Technology*, DOI: 10.18517/ijaseit.11.2.11593.
- [6] Geraldo Stachetti Rodrigues, Carlos Roberto Martins, Inácio de Barros (2018), “Sustainability assessment of ecological intensification practices in coconut production”, *Agricultural System*, Volume 165, pg. 71-84.
- [7] Sathana, V (2017), Problems and challenges associated with value addition: with special reference to coconut based productions in Jaffna District, *Kelaniya Journal of Management* , DOI: 10.4038/kjm.v6i0.7538.
- [8] Dr.S.M.Yamuna and Ms.R.Ramya (2016), “A Study of Coconut Cultivation and Marketing in Pollachi Taluk”, *International Journal of Innovative Research in Management Studies (IJIRMS)*, Volume 1 | Issue 2, ISSN (Online): 2455-7188.
- [9] M. Kalimuthu and Dharani. S (2016), “A Study on Marketing Problems faced By Coconut Producers with Special Reference to Sular Taluk”, *EPRA International Journal of Research and Development (IJRD)*, Volume: 5, Issue: 11, ISSN: 2455-7838(Online).
- [10] Sangamithra *et al.*, (2013), Coconut- Value Added Products, *Indian Food Industry Management*, Vol 32 No 6.

Citation: A. Soundharya, V. Josephine Lourdes De Rose. (2025). Innovative Value Addition Strategies in Coconut Processing: Enhancing Economic Sustainability and Market Competitiveness. *International Journal of Commerce and Business Studies (IJCBS)*, 7(2), 65-75.

Abstract Link: https://iaeme.com/Home/article_id/IJCBS_07_02_005

Article Link:

https://iaeme.com/MasterAdmin/Journal_uploads/IJCBS/VOLUME_7_ISSUE_2/IJCBS_07_02_005.pdf

Copyright: © 2025 Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Creative Commons license: Creative Commons license: CC BY 4.0



✉ editor@iaeme.com