Supply Chain of Copra Industry in Zamboanga Del Norte

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ABSTRACT

One significant area of the Philippine agriculture is the coconut industry. However, among the various agricultural industries, the coconut or copra industry has historically received limited attention and support despite its centuries-old existence. Therefore, this study employed a thematic content analysis to examine the copra supply chain in Dapitan City, Zamboanga del Norte focusing on the roles, collaboration, and operational flow among key players. The intricate network involves coconut farmers, copra converters, traders, and ultimate buyers, each reliant on distinct resources for efficient operation. Specifically, coconut farmers are classified into cultivators, who are responsible for the cultivation and harvesting of coconuts, and producers, who process coconuts into copra, involving activities such as dehusking and drying. Furthermore, converters, typically operating at the barangay level, purchase copra from local farmers and sell it to interior traders. These interior traders, also known as municipal or city traders, are succeeded by terminal traders, who manage larger warehouses and have contractual relationships with ultimate buyers. Consequently, these buyers, positioned at the supply chain's conclusion, engage in processing copra into oil. The study assessed the efficacy of collaboration among these stakeholders concerning coordination, communication, encountered challenges, and opportunities for enhancement. Additionally, an in-depth interview about copra flow configuration in Dapitan City is conducted, with a particular focus on the supply chain map and the roles of intermediaries. This investigation reveals potential inequitable practices by traders, thereby deepening the understanding of supply chain dynamics and identifying strategies to enhance efficiency and collaboration among stakeholders.

Keywords: Supply Chain, Farmer, Intermediaries, Trader, Supply Chain Map, Ultimate Buyer

INTRODUCTION

The coconut tree originated in the tropical regions of the Old World and was introduced to the Pacific Coasts of Latin America and eastern Polynesia by ancient Austronesian Filipino sailors. This introduction had a significant impact on global agriculture, and the coconut tree remains an important cultural and economic asset for many communities today (Gunn et al., 2011).

In the Philippines, coconut production is vital, with the country being one of the leading global producers. The annual production of coconut in the Philippines is approximately 347 million metric tons, accounting for around 45 percent of the world's coconut exports. This industry supports the livelihoods of about 34 million coconut farmers and contributes significantly to the Philippine economy. Coconut farming is well-suited for the country's tropical climate, and the resilience of coconut trees against typhoons further enhances their cultivation (Jagdish, 2023).

Coconut production in the Philippines ranks second globally, following Indonesia. According to the Organisation for Economic Co-operation and Development, in 2013, the Philippines contributed 25% to the global coconut production, 24% to the global coconut exports, and an impressive 46% to the worldwide export of coconut oil. This highlights the country's prominence in the coconut industry (Doloriel, 2022; OECD, 2013).

According to the Philippine Coconut Authority (PCA), the coconut is often referred to as the "Tree of Life" in the Philippines due to its versatility and numerous applications. It is used not only for food but also for various edible and non-edible products. Coconut meat is a primary ingredient in producing coconut oil, virgin coconut oil, copra meal, flour, and desiccated coconut. However, traditional practices in the market structure disadvantage coconut farmers, as they often sell their copra at undervalued prices to local traders. Middlemen play a significant role in determining prices and often take a substantial portion for themselves, leaving farmers in a vulnerable position. Addressing these issues is crucial for fair compensation and unlocking the full potential of the coconut industry.

The regions of CALABARZON (Calamaba. Laguna, Batangas, Rizal, Quezon), Zamboanga Peninsula, Davao, and Northern Mindanao are major contributors to coconut production in the Philippines. CALABARZON and the Zamboanga Peninsula are primary coconut-producing regions, while Davao and Northern Mindanao also play significant roles. These regions' collective efforts contribute to the country's status as a leading global coconut producer (DOST; Coconut – Industry Strategic Science and Technology Plans (ISPs) Platform).

The primary objective of this study is to investigate and identify key players in the copra supply chain in Dapitan City, including farmers, traders, cooperatives, and local processors. This study aims to analyze participant roles in the copra supply chain, market structures, and intermediary impact. The goal is to offer insights for improving efficiency, fairness, and sustainability in Dapitan City's copra industry. The findings will inform strategies, policies, and interventions to enhance resilience and competitiveness. The research is expected to benefit copra industry stakeholders and policymakers.

Objectives

The study aims to uncover the components, stakeholders, and dynamics of the copra supply chain, providing valuable insights for strategies to improve its efficiency, sustainability, and overall effectiveness.

Specifically, it sought to answer the following:

1. What roles do different key players play in the copra supply chain in Dapitan City?

    1.1. Coconut Farmers

    1.2. Copra Converter

    1.3. Copra Traders

    1.4. Ultimate Buyers

2. How effectively do the key players collaborate in analyzing the copra supply chain in Dapitan City, in terms of:

    2.1. Coordination among the key players;

    2.2. Communication and information flow;

    2.3. Challenges in coordinating the entire supply chain; and

    2.4. Opportunities for improvement and collaboration?

3. What is the structure of copra flow in Dapitan City, particularly focusing on, in terms of:

    3.1. Supply Chain Map; and

    3.2. Role of Intermediaries

METHODOLOGY

The researchers used a qualitative methodology as the study aimed to identify the key actors and processes involved within the flow of the supply chain of copra in Dapitan City. Specifically, a semi-structured interview was conducted so that the researchers could ask additional questions during the interviews if clarifications and further explanations were needed. The participants' subjective and objective perceptions formed the core data of the study; hence, it was the needed method that dealt with the topic in a narrative and descriptive nature. An interview guide was administered to the respondents prior to the interview proper, which included the questions that they would be asked during the interview. The research participants for this study primarily consisted of 5 local copra farmers/growers from each of the following barangays within Dapitan City: Barangay Owaon, Barangay Ilaya, Barangay Maria Cristina, and Barangay Sulangon. The number of copra converters, interior traders, terminal traders, and ultimate buyers interviewed, who were also part of the supply chain as anchored in the Theoretical Framework, depended on the answers of the copra farmers/growers. In this study, interviews were conducted with 1 converter, 5 traders, and 1 ultimate buyer to gain insights into the dynamics of the copra supply chain. These individuals were directly involved in the production, sale, and distribution of copra, and their experiences and insights were valuable in understanding the copra supply chain. The selection of participants was done using a purposive sampling method, focusing particularly on the local copra farmers/growers, copra converters, interior traders, terminal traders, and ultimate buyers who had significant experience in the copra industry. Through their participation, the researchers gained a deeper understanding of the factors influencing the copra market in Dapitan City and used the knowledge obtained in developing strategies to stabilize the market and support the local copra industry.

RESULTS AND DISCUSSION

1. What roles do different key players play in the copra supply chain in Dapitan City?

    1.1. Coconut Farmers

    1.2. Copra Converter

    1.3.Copra Traders

    1.4.Ultimate Buyers

Coconut Farmers: Cultivate and harvest coconuts, selling copra to converters, providing immediate market access and reducing travel needs.

Converters: Purchase copra directly from farmers, playing a vital role in the initial stages of the chain.

Interior Traders: Operate on a larger scale, consolidating copra from multiple sources, ensuring steady supply, and maintaining quality.

Terminal Traders: Aggregate copra from interior traders, negotiate contracts with ultimate buyers or millers, and prepare for bulk transactions.

Ultimate Buyers: Process copra into various coconut-derived products, adding value and meeting consumer demand.

2. How effectively do the key players collaborate in analyzing the copra supply chain in Dapitan City, in terms of:

2.1. Coordination among the key players;

2.2. Communication and information flow;

2.3. Challenges in coordinating the entire supply chain; and

2.4. Opportunities for improvement and collaboration

Coordination among the key players

The copra supply chain involves a complex network of stakeholders, including farmer-cultivators, farmer-producers, copra converters, interior traders, terminal traders, and milling corporations. Effective coordination among these key players is essential to ensure that copra production, transportation, quality management, and financial transactions are conducted smoothly, meeting market demands and minimizing delays.

Farmer-Cultivator to Farmer-Producer

Farmer-cultivators coordinate with farmer-producers to manage copra production, often integrating roles to streamline costs. This coordination ensures efficient production cycles, typically every three months. In some cases, independent farmer-producers are hired for specific tasks such as harvesting and drying coconuts, ensuring a steady production flow.

Farmer-Producer to Copra Converter

Farmer-producers sell copra to traders (copra converters or interior traders), often delivering directly to storage facilities. Established relationships with traders, known as "suki," allow for financial flexibility through cash advances. However, some farmer-producers prefer to remain independent to sell to the highest bidder, ensuring they get the best price and proper weighing.

Interior Traders to Terminal Traders

Interior traders, with larger storage facilities, serve as intermediaries between farmers and terminal traders. They manage the collection, storage, and initial quality control of copra before passing it to terminal traders, who then supply it to milling corporations. This relationship underscores the importance of terminal traders, who have the financial resources and contractual agreements with millers.

Terminal Trader to Ultimate Buyer

Terminal traders play a pivotal role by holding contracts with milling corporations, ensuring the delivery of large quantities of copra. They coordinate logistics and quality compliance, facilitating smooth transactions and maintaining supply chain integrity.

Communication and Information Flow

Effective communication is crucial at each stage of the supply chain. Farmer-cultivators and farmer-producers typically use phone calls to coordinate harvesting and production schedules. Copra converters and interior traders notify each other about copra availability and delivery arrangements, often relying on established relationships for smoother transactions. Terminal traders and milling corporations communicate to ensure adherence to quality standards and delivery timelines, often using brochures and educational programs to inform and train farmers and traders about updated requirements.

The coordination among stakeholders in the copra supply chain is vital for ensuring the efficient movement of copra from production to market. This involves a combination of direct communication, established relationships, and adherence to quality standards, enabling the supply chain to meet market demands effectively while minimizing inefficiencies.

Challenges in coordinating the entire supply chain

The copra supply chain faces significant challenges in coordinating its diverse stakeholders and complex logistics. This discussion examines the multifaceted issues that hinder seamless collaboration and efficiency, including:

Poor Quality Management: Copra quality issues like high moisture content, impurities, and adulteration lead to reduced oil extraction rates, increased processing time, and higher energy consumption for millers. Lack of quality control and transparency in grading/pricing disadvantages farmers.

Landscape Variations: Rugged terrain, remote locations, and natural hazards in coconut-producing regions create significant logistical hurdles and increase transportation costs for moving copra to processing facilities.

Market Volatility: Fluctuations in copra prices due to global market trends and supply-demand dynamics cause income instability and livelihood risks for smallholder farmers.

Inadequate Farm-to-Market Roads: Poor infrastructure in remote areas results in high transportation costs, reduced economies of scale, and quality deterioration of copra during prolonged storage and transit.

Unfair Trading Practices: Deceptive practices by traders, such as non-use of weighing scales and misrepresentation of quality, limit farmers' bargaining power and reduce their earnings.

Lack of Resources for Infrastructure: Delayed offloading of copra at mills due to limited handling facilities disrupts supply chain flow, increases operational costs, and affects copra quality.

Weather Conditions: Extreme weather events damage coconut trees, disrupt transportation, and cause damage to storage facilities, leading to supply chain disruptions.

Ineffective Communication: Lack of information exchange between traders and millers regarding new quality standards results in non-compliance and rejection of copra, hampering procurement processes.

Opportunities for improvement and collaboration

This discussion explores the various opportunities for enhancement and collaboration within the copra supply chain. It focuses on identifying areas where stakeholders can work together to improve processes, increase efficiency, and foster innovation.

Copra quality, measured by moisture content, is crucial as excessive moisture can lead to mold and Aflatoxin contamination, affecting the value of copra meal. The Philippine Coconut Authority (PCA) publishes guidelines on copra price premiums/discounts based on moisture levels.

However, small farmers face challenges in receiving fair premiums as traders do not provide moisture measurement services, and the PCA does not monitor trader discounts. This lack of transparency demotivates small farmers from investing in quality improvement.

Potential solutions include third-party moisture testing or promoting farmer cooperatives. This would empower small farmers, enhance their bargaining power, and enable investments in quality control infrastructure. Reviving the PCA's Small Coconut Farmer Organizations (SCFOs) model with a hybrid cooperative approach is recommended.

3. What is the structure of copra flow in Dapitan City, particularly focusing on, in terms of:

3.1. Supply Chain Map; and

3.2. Role of Intermediaries

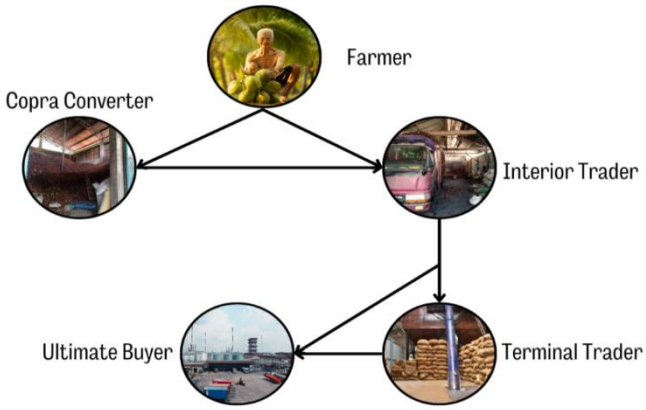

Fig. 1. Supply Chain Map of Copra Supply Chain in Dapitan City

The distribution flow within the copra supply chain involves distinct roles and processes that work together to ensure the efficient movement of copra from farmers to ultimate buyers. This flow begins with barangay-based converters, who serve as the initial link in the chain. These converters directly purchase copra from farmers within their local communities. By operating at the local level, they provide immediate access to the market for farmers, allowing them to sell their copra without the need for extensive travel or intermediary involvement.

After the copra is acquired by the converters, it is transferred to interior traders. Interior traders play a significant role in the distribution flow as intermediaries between the converters and terminal traders. They operate on a larger scale and possess more extensive storage facilities. These traders work to consolidate copra from various sources, ensuring a steady supply for downstream buyers. With their larger storage capacities, they can aggregate copra from multiple barangays or regions, further streamlining the distribution process. The involvement of interior traders helps to ensure a more efficient and organized supply chain, enabling copra to flow smoothly from farmers to ultimate buyers.

The terminal traders represent the final stage in the distribution flow of copra. These traders are characterized by their significant resources as they have larger storage facilities compared to those owned by interior traders and direct contracts with ultimate buyers or millers. They are strategically positioned in key market centers or ports, where copra is aggregated and prepared for sale to the ultimate buyers. Terminal traders often negotiate contracts with oil millers or other large-scale buyers, ensuring a stable market for copra and facilitating bulk transactions

Crucially, the financial transactions within the copra supply chain are facilitated through a system of trust and documentation. Interior traders, who hold a central role in the distribution process, typically collect payment from terminal traders based on weight slips provided by ultimate buyers or millers. These weight slips serve as proof of the quantity and quality of copra delivered, enabling transparent and accountable transactions throughout the supply chain. This documentation process ensures that all parties involved have clear records of the copra traded, promoting trust and transparency in the exchange of goods and finances.

Overall, the distribution flow within the copra supply chain involves cooperation and coordination among the different stakeholders, from converters to interior traders to terminal traders. Each player contributes their expertise and resources to ensure the efficient movement of copra from the farmers to the ultimate buyers.

Role of Intermediaries

Philippine Coconut Authority. The Philippine Coconut Authority (PCA) plays a crucial role as an intermediary in the copra supply chain, facilitating the flow of copra from farmers to ultimate buyers and ensuring fair trade practices and market efficiency. The PCA supports farmers by providing information, guidance, and market support, helping them overcome challenges in the copra trade. Through its network, the PCA connects farmers with traders, millers, and other stakeholders, promoting transparency and facilitating transactions. Additionally, the PCA disseminates information about market trends, prices, and quality requirements, enhancing

communication and reducing information asymmetry. Overall, the PCA aims to foster a fair and sustainable copra industry, benefiting all participants from farmers to buyers.

United Coconut Associations of the Philippines (UCAP). The United Coconut Associations of the Philippines (UCAP) is a non-stock, non-profit organization that unites various associations and organizations within the Philippine coconut industry. UCAP's main objectives include promoting the common good of all industry sectors, serving as an information hub, and providing a discussion forum. UCAP collects market information from brokers and shares it with coconut farmers to keep them informed about market trends and prices. The organization also gathers daily copra prices from oil refiners and millers. Additionally, UCAP monitors and disseminates information on food safety standards and best practices in the copra supply chain, ensuring compliance with quality standards to maintain the marketability of Philippine copra.

CONCLUSIONS

Based on the data findings throughout the study, the researchers concluded the following:

1. The copra supply chain grapples with multifaceted challenges, from quality management issues to market volatility, infrastructure deficits, and communication inefficiencies.

2. Incentivizing high-quality production could enhance the overall integrity of the copra supply chain.

3. Strengthening farmers' organizations is another avenue for empowerment, enabling them to negotiate fairer prices and access resources more effectively.

4. Fostering better collaboration and innovation among stakeholders could streamline operations and introduce resilience to the supply chain.

Based on these conclusions, the following are hereby recommended:

1. Enhance Quality Control Measures

2. Enhanced Support from the Philippine Coconut Authority (PCA)

3. Direct Contract with Millers

4. Establish Coconut Farmers Organization

5. Establish Effective Communication

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