

Development of Agribusiness in Tiwi, Albay

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Abstract:- This study determined the status of agribusiness in Tiwi, Albay, as basis for the development of business plan. Specifically, it sought to answer the following sub-problems: 1) What are the areas of agribusiness in the Municipality of Tiwi, Albay?; 2) What are the status of agribusiness along; crop production, animal production, aquaculture production, and agri-support services and manufacturing?; 3) What are the contributions of the above areas in the agribusiness in Tiwi, Albay?; 4) What are the problems encountered in agribusiness?; and 5) What business plan may be proposed to address the problems encountered in agribusiness? The study involved presenting the agribusiness sectors contributions through tables and charts, emphasizing their economic impact and community significance. It addressed challenges by organizing issues like infrastructure or market access, supported by relevant data or case studies. It proposed a comprehensive business plan targeting specific problems with detailed strategies, cost estimates, and potential outcomes.

Descriptive surveys are crucial in agribusiness research, providing detailed insights into agricultural practices and factors affecting productivity within a specific population. These surveys utilize statistical tools such as frequency percentage and weighted mean to accurately depict response distribution and measure the significance of variables.

Synthesizing findings and ensuring proper citation and definition of terms in research helps draw meaningful conclusions and contribute to a broader understanding of agribusiness practices in the region. Incorporating literature demands a structured approach, starting with an introduction highlighting the topic's significance, organizing sources thematically or chronologically, and synthesizing findings while ensuring proper citation and defining terms for clarity.

Descriptive surveys in agribusiness employed tools like frequency percentage to depict response distribution and weighted mean to gauge variable significance, offering precise insights into agricultural practices and factors affecting productivity within the surveyed population.

I. INTRODUCTION

Agribusiness plays a vital role, universally serves as a driving force for both the agricultural sector and the broader economy. This multifaceted industry encompasses various activities, from crop cultivation and livestock farming to food processing, distribution, and marketing. The impact of agribusiness on agriculture and the economy is profound, influencing production efficiency, employment, innovation, and economic growth. Agribusiness significantly contributes to agricultural productivity. Through the adoption of advanced technologies, improved farming practices, and the use of genetically modified organisms, agribusiness enhances crop yields and livestock production. This increased efficiency helps meet the growing global demand for food, ensuring food security and stability in the agricultural sector. The integration of modern technologies, such as precision farming and smart irrigation systems, do not only boosts productivity but also promotes sustainability by optimizing resource use. In the Philippine economy, millions of Filipinos have jobs in agriculture because the country relies heavily on the different activities in this industry, which produces and transform products from the farms including services for people. With vast agricultural land, more agricultural products are produced and more services are needed bringing about high percentage in total employment share in the country.

The government support the agricultural sector of the country as stated in the 1987 Philippine Constitution which states that:

Accordingly, agricultural sector provides jobs not only in primary agricultural activities but also in processing, packaging, transportation, and marketing. The entire supply chain of agribusiness creates a vast network of employment opportunities, especially in rural areas where agriculture is a primary economic activity. The expansion of agribusiness enterprises contributes to poverty alleviation by providing livelihoods to a significant portion of the population.

Crop production is a common agricultural practice followed by farmers to grow and produce crops to use as food and fiber. This practice includes all the feed sources that are required to maintain and produce crops. While animal production refers to the field of applied agriculture that focuses on the production of animals for various purposes. It involves research and practices related to animal production,

animal plant interaction, pasture and fodder crops, field crops, extension, and horticulture. Further, aquaculture is breeding, raising, and harvesting fish, shellfish, and aquatic plants. Basically, it is farming in water. Lastly, agricultural support services (technical assistance, seeds, crop protection, credit, market support, animal husbandry, fishery, etc..) are provided to pioneering farming communities that apply sustainable production measures.

II. THEORETHICAL FRAMEWORK

To comprehend the complexities within the agribusiness sector, it's essential to delve into diverse theoretical frameworks that illuminate the broader systemic dynamics, among these, The Theory and Models of Agricultural Development by Udemezue JC1 and Osegbue EG2 (2018), Grounded Coding Techniques Theory by Glaser and cited by Strauss (2018), Supply Chain Management Theory by Simchi-Levi, as cited by Kaminsky (2017), and the Resource-Based View theory (RBV), theory, as discussed by Barney as cited by Wernerfelt (2016),

The theory and models of Agricultural development of Udemezue JC1 and Osegbue EG2 (2018)⁴¹, is a sub-set of rural development. However, rural areas cannot attain development without its agriculture being developed because majority of the rural dwellers are engaged in agricultural practices as their major source of income. The main objectives of agricultural development are the improvement of material and social welfare of the people. Therefore, creating a sustainable agricultural development path means improving the quality of life in rural areas, ensuring enough food for present and future generations and generating sufficient income for farmers. Supporting sustainable agricultural development also involves ensuring and maintaining productive capacity for the future and increasing productivity without damaging the environment or jeopardizing natural resources. In the light of this, this paper employed available literature to review agricultural development and theories of agricultural development such as frontier model, conservation model, the urban-industrial impact model, diffusion model and high-pay off input model. Figure 2, shows the theoretical paradigm of the study.

Grounded Coding Techniques Theory by Glaser as cited by Strauss (2018)⁴², overview of grounded theory coding techniques and their potential application in agribusiness: Open Coding: This initial stage involves breaking down data into distinct parts, line by line, to identify concepts, categories, and patterns. In agribusiness, this might involve analyzing interviews, surveys, or observations to uncover a wide range of concepts, like agricultural practices, market fluctuations, or challenges faced by farmers. Axial Coding: This step involves making connections between the different concepts identified during open coding. For agribusiness, axial coding could help in understanding how various elements within the agricultural value chain interact—for instance, how farmer decision-

making affects crop yields or how market demands impact pricing strategies down impact model, diffusion model and high-pay off input model. Figure 2, shows the theoretical paradigm of the study.

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Axial Coding: This step involves making connections between the different concepts identified during open coding. For agribusiness, axial coding could help in understanding how various elements within the agricultural value chain interact—for instance, how farmer decision-making affects crop yields or how market demands impact pricing strategies. Understanding Farmer Decision-Making: These techniques can help uncover the thought processes and factors influencing farmers' choices regarding crop selection, use of technology, or adoption of sustainable practices. By employing grounded theory coding techniques in agribusiness research, stakeholders can gain a deeper understanding of the complexities within the industry, allowing for more targeted interventions, better decision-making, and improved practices to enhance productivity, sustainability, and profitability.

Supply Chain Management Theory by Simchi-Levi, as cited by Kaminsky (2017)⁴³, presents a holistic framework addressing the strategic coordination and enhancement of the flow of goods, services, information, and finances within supply chains. This theory encompasses several fundamental principles. Firstly, it stresses seamless integration among supply chain entities, aiming to bolster coordination and cut inefficiencies. Additionally, it emphasizes efficiency improvements by optimizing inventory, reducing lead times, and implementing lean principles for waste reduction.

The theory also prioritizes risk management, advocating proactive identification and mitigation strategies for potential disruptions. Moreover, it embraces technological advancements like analytics and IoT, enhancing visibility and decision-making. Aligning supply chain strategies with customer needs and sustainability considerations rounds out this approach. Simchi-Levi's theory likely explores practical strategies within real-world supply chains to optimize networks, navigate complexities, harness technology, and adapt to market dynamics, ultimately striving for operational excellence and competitive edge.

The Resource-Based View theory (RBV)⁴⁴, theory, as discussed by Barney as cited by Wernerfelt (2016), highlights how a firm's competitive standing is shaped by its resources. It underscores the need to comprehend how a company's distinct resources such as technology, human expertise, brand reputation, and efficient supply chains contribute to its competitive advantage in an industry. When applied to the agribusiness realm, RBV provides insights into how agricultural enterprises can gain a competitive edge. Factors like fertile land, innovative farming tech, skilled workforce, streamlined supply chains, and sustainable agricultural methods become pivotal for securing a competitive advantage in this sector. By employing this theory within agribusiness, it emphasizes the importance of identifying and leveraging unique agricultural resources and capabilities to elevate productivity, quality, and market positioning. Firms that effectively strategize and utilize their resources in this manner position themselves better to thrive amidst the competitive dynamics of the agribusiness landscape.

Researcher's theory on the status of agribusiness This theory posits that within agribusiness, sustained competitive advantage stems from a strategic alignment of internal resources, as analyzed through grounded theory coding techniques, coupled with the optimization of interconnected supply chains. By systematically exploring and leveraging internal strengths, such as technological innovations, efficient practices, and market responsiveness, agribusinesses can enhance their competitiveness, resilience, and sustainability within evolving markets and environmental conditions.

III. CONCEPTUAL FRAMEWORK

This study utilized a systems approach comprising three main sub-systems: inputs, process, and outputs. The inputs of the study included the status of agribusiness in Tiwi, Albay, along with operational and management details. The process sub-system involved the administration of research instruments formulated by the researcher. These tools underwent two validation processes: face validity, evaluated by the thesis committee, and content validity, handled by external validators. Prior to data collection, the research instruments underwent a dry-run in other municipalities with agribusiness enterprises. was issued to secure permits from the owners of the agribusiness enterprises for study purposes. The researcher personally distributed and conducted the research among proactive respondents, then retrieved the survey questionnaires. The gathered data was tabulated and interpreted using statistical tools, employing measures of descriptive statistics.

The output subsystem encompassed the formulation of a strategic plan for the agribusiness enterprise. A feedback component ensured the cyclical nature of research concepts. Feedback occurs when outputs of a system are routed back as inputs as part of a chain of cause-and-effect that forms a circuit or loop. The system can then be said to feedback into

itself. In business, feedback is the transmission of evaluative or corrective information about an action, event, or process to the original or controlling source.

IV. REVIEW ON THE RELATED LITERATURES AND STUDIES

Srisa-an et al., (2019)¹ in their article "Agribusiness in Thailand: Opportunities and Challenges", highlighted the opportunities and challenges facing the industry, including the increasing demand for food, the need for modernization and technology adoption, and the impact of climate change. They also analyzed the role of government policies and international trade in shaping the agribusiness landscape in Thailand. They argued that the increasing demand for food in Thailand is driven by population growth, urbanization, and changing consumer preferences. This demand has led to an increase in agricultural production, but also poses challenges such as resource depletion, environmental degradation, and food safety concerns. They also emphasized the importance of technology adoption in agribusiness growth. They cited examples of successful technology adoption in Thailand's agribusiness sector, such as the use of drones for crop monitoring and irrigation management, and the development of smart farming systems.

However, they also acknowledged that technology adoption is not without its challenges, such as high costs and lack of access to financing for small-scale farmers. They also highlighted the need for modernization, technology adoption, climate-smart agriculture practices, government policies that consider social and environmental concerns, and international trade strategies that focus on value-added products. These recommendations provided a road map for policymakers and industry stakeholders to promote sustainable agribusiness growth in Thailand.

The agribusiness sector in Japan has been facing several challenges in recent years. According to Sakai (2019)², the aging population and decreasing land availability have led to a decline in agricultural production, while labor shortages and high production costs have made it difficult for agribusinesses to remain competitive. This article examined these challenges and discussed potential opportunities for agribusiness growth through innovation, technology adoption, and international trade. This demographic shift has led to a decline in agricultural production, as many farmers are retiring or leaving the industry due to lack of successors. Many farmers are finding it difficult to find workers to help with planting, harvesting, and other tasks. The high cost of production was another challenge facing the agribusiness sector in Japan.

Many farmers were finding it difficult to compete with imported products due to their higher prices. Many Japanese companies invested in research and development (R&D) to develop new technologies and products that can help address some of the challenges facing the industry. These innovations

can help make agriculture more sustainable and profitable for farmers while also addressing some of the challenges facing the industry. Another opportunity for agribusiness growth was technology adoption. Many Japanese farmers were adopting new technologies such as precision agriculture or robotics that can help reduce costs or improve efficiency.

This article provided an analysis of the agribusiness sector in Korea, which is a major agricultural exporter in Asia. Lee (2019)³, examined the trends and challenges facing the industry, including the aging population, declining agricultural land, and increasing competition from other countries. They also discussed the role of government policies in supporting agribusiness growth and addressing these challenges. The article highlighted the need for innovation, technology adoption, and international trade to address the declining agricultural production in Korea.

In conclusion, this article provided an analysis of the trends and challenges facing the agribusiness sector in Korea due to demographic, environmental, and economic factors such as an aging population, declining agricultural land, and increasing competition from other countries. The authors suggested that government policies should focus on addressing these challenges through inter-generational transfer of farming skills, promotion of sustainable agriculture practices, and promotion of innovation and technology adoption through research and development programs, tax incentives for R&D investments, and partnerships with foreign companies for technology transfer. By addressing these challenges through effective policy measures, it will be possible for the agribusiness sector in Korea to remain competitive while ensuring long-term viability for future generations.

The article "Agribusiness in Cambodia: Opportunities and Constraints" by Sokhom (2018)⁴, provided an analysis of the agribusiness sector in Cambodia, which is a rapidly growing economy with significant agricultural potential. The authors examine the opportunities and constraints facing the industry, such as limited access to finance, poor infrastructure, and weak institutional capacity. They also discussed the role of government policies in promoting agribusiness growth and addressing these constraints. The article provided insights into the challenges and opportunities facing the agribusiness sector in Cambodia, which can inform policy decisions and investment strategies for the industry.

One of the major constraints facing the agribusiness sector in Cambodia is limited access to finance. According to the Sokhom many smallholder farmers lack access to credit due to weak financial institutions and high interest rates. This limits their ability to invest in modern agricultural practices and technologies, which can improve productivity and profitability. To address this constraint, the authors suggested that the government should provide subsidies for agricultural loans and promote the development of rural financial institutions. They also suggested that international

organizations should provide financial assistance for agricultural development projects in Cambodia. Another major constraint facing the agribusiness sector in Cambodia is poor infrastructure. According to the authors, many rural areas lack basic infrastructure such as roads, bridges, and irrigation systems. This limits farmers' access to markets and inputs such as seeds, fertilizers, and pesticides. To address this constraint, the authors proposed that the government should invest in infrastructure development projects in rural areas. They also suggested that international organizations should provide financial assistance for infrastructure development projects in Cambodia.

Agribusiness sector in Cambodia, highlights both opportunities and constraints facing the industry. Sokhom recommended that limited access to finance, poor infrastructure, and weak institutional capacity are major constraints facing the industry, and also suggested that government policies can play a critical role in promoting agribusiness growth by providing subsidies for agricultural inputs, promoting research and development programs for modern agricultural practices and technologies, and promoting market-oriented policies such as liberalization of trade barriers.

In the writing of Zhang (2019)⁵, provided an analysis of the agribusiness sector in China, which is the world's largest agricultural producer and consumer. The author examined the trends and challenges facing the industry, including rapid urbanization, environmental degradation, and increasing competition from other countries. The writer also discussed the role of government policies in supporting agribusiness growth and addressing these challenges. The author concluded that while China's agribusiness sector has experienced significant growth in recent years, it still faces numerous challenges, such as aging population, declining agricultural land, and weak institutional capacity. To address these challenges, the author recommended policies that promote innovation, technology adoption, and international trade.

Moreover to Kiunjuri (2021)⁶, argued that while Sub-Saharan Africa SSA has made significant progress in agricultural development over the past few decades, crop production remains a major challenge due to various factors such as climate change, low productivity, and poor infrastructure. Crop production has increased in recent years, it still falls short of meeting the region's food demands. They also highlight the fact that smallholder farmers, who make up a significant portion of the agricultural sector in SSA, continue to face numerous challenges that hinder their productivity and profitability. Identify several challenges that impede crop production in SSA.

These include climate change, which has led to erratic rainfall patterns, droughts, and floods; poor infrastructure, which makes it difficult for farmers to access markets and inputs; low productivity due to poor soil quality, pests, and

diseases; and limited access to finance and technology. Addressing these challenges is practical and feasible, and the discussion of opportunities is insightful. The article was well-written, with clear arguments supported by evidence from various sources. The author also provided recommendations for policymakers, researchers, and practitioners on how to address the challenges facing crop production in SSA. This article is an important contribution to the literature on agricultural development in SSA and should be widely read by scholars, policymakers, and practitioners working in this field.

Additionally, Lira (2010)⁷, in another article, provided an overview of the current state of animal production in Brazil, as well as potential future developments. Brazil is a major player in global animal agriculture, with significant contributions to beef, poultry, and pork production. The author discussed the country's strengths and weaknesses in each sector, as well as opportunities and challenges for growth. The author also pointed out trends and opportunities for innovation and technology adoption in animal agriculture in Brazil and highlighted areas such as precision agriculture, genetic selection, and digitalization as potential drivers of growth and competitiveness.

However, the writer also noted that these technologies may be expensive and require significant investment and infrastructure development. Overall, it provided a comprehensive overview of the current state of animal production in Brazil and its potential future developments. The author highlighted both strengths and weaknesses in each sector, as well as opportunities and challenges for growth. Their discussion of innovation and technology adoption is particularly insightful, as it highlights both the potential benefits and challenges of these trends for the industry's future development.

Furthermore, Nguyen (2021)⁸, stressed that one of the key opportunities identified were the potential for aquaculture to contribute to poverty alleviation and food security in rural areas. The aquaculture can provide a source of income and employment for smallholder farmers, particularly women and marginalized communities, who may not have access to other sources of income. However, it was also noted that there were challenges associated with scaling up small-scale aquaculture operations, such as limited access to credit and technology. Another opportunity identified by the author was the potential for aquaculture to contribute to economic development through exports and value addition. In terms of social and economic equity, the author's note that there are significant disparities in access to resources and opportunities within the aquaculture industry. They argued that there was a need for greater investment in capacity building and training programs to provide smallholder farmers with the skills and knowledge they need to succeed in the industry. They also highlighted the need for greater investment in infrastructure development to provide smallholder farmers with access to markets and other resources.

Crop production has a significant environmental impact due to its reliance on natural resources such as water and land use. Thus, Ar. (2020)⁹, argued that the use of fertilizers and pesticides also poses environmental risks such as water pollution and soil degradation. However, there had been a growing trend towards sustainable agriculture practices that promote environmental conservation while ensuring food security. These practices include conservation agriculture techniques such as no-till farming, cover cropping, and crop rotation that promote soil health and reduce erosion while minimizing input costs. Additionally, there had been an increase in organic farming practices that rely on natural inputs such as composting and natural pest control methods instead of synthetic inputs. Crop production plays a significant role in the agribusiness industry due to its contribution to food production, raw materials for various industries, economic significance, technological advancements, and environmental impact. The industry's continued growth will require a balance between meeting the growing demand for food while ensuring environmental conservation through sustainable agriculture practices.

V. METHODOLOGY

The study employed a descriptive-survey research method to assess the status of agribusiness in Tiwi, Albay. This method was chosen for its ability to systematically collect comprehensive data, allowing for an in-depth understanding of the various aspects of agribusiness, including crop production, animal production, aquaculture, agri-support services, and manufacturing. The study also explored the success stories of agripreneurs, examining how they developed business plans, identified agricultural products, created marketing strategies, and secured financing.

Both Calmorin and Calmorin (2012) and Aggarwal (2018) support the descriptive-survey method for its thorough approach to gathering data, which is crucial for statistical analysis. The study used both primary and secondary sources of data. Primary data were gathered through surveys, interviews, or questionnaires from agribusiness owners, managers, employees, and stakeholders, providing firsthand information. Secondary data came from published and unpublished materials such as books, journals, official documents, and web sources, offering additional context and supporting the primary data. Respondents were selected through purposive sampling, including 50 registered farmers, 25 backyard hog and poultry raisers, 10 small-scale fishpond owners, and 15 agri-support service and manufacturing owners.

Descriptive statistical tools were used for data analysis. Frequency counts and percentages were applied to determine key agribusiness areas, following the formula suggested by Siegel (1998).

VI. FINDINGS

- Agribusiness Distribution: Crop production: 50%, Animal production: 25%, Agri-support services and manufacturing: 15%, Aquaculture: 10%.
- Status in Each Sector (Weighted Means): Crop Production: Soil quality (3.88), water resources (3.68), pests (3.64), market access (3.48). Animal Production: Mortality rates (3.96), water usage (3.92), disease outbreaks (3.91), animal health impact on feed quality (3.68). Aquaculture: Labor cost and productivity (4.40), water quality and availability (3.80), average weight gain per fish (3.70). Agri-Support Services and Manufacturing: Value addition and processing (4.33), access to credit and financing (4.07), market positioning (3.39).
- Impact of Agribusiness (Weighted Means): Crop Production: 4.07 to 4.10 across various indicators. Animal Production: Market access (4.11), nutrition and feed supplements (4.03). Aquaculture: 4.02 to 4.09. Agri-Support Services and Manufacturing: Technological adoption (4.09), job creation (4.08), value addition (4.06).
- Problems Faced (Weighted Means): Crop Production: Soil erosion, fertility depletion, decreased crop yields (4.00). Animal Production: Water scarcity (4.60), high-quality feed scarcity (4.44), poor animal care practices (4.44). Aquaculture: Poor waste management (4.20), insufficient waste management (4.00), ecosystem alterations (3.90). Agri-Support Services and Manufacturing: Inadequate value addition and processing (4.33), limited access to credit (4.27), inadequate extension services (4.07).
- Business Plans: Crop production: Soil conservation, resilient farming, improved water access. Animal production: Efficient water management, diverse feed sources, adherence to best practices. Aquaculture: Waste control, sustainable practices, community engagement. Agri-support services and manufacturing: Value addition, financial access, technical support, involving stakeholders.

VII. CONCLUSION

- The agribusiness sectors in Tiwi, Albay, exhibit diversity, with crop production, animal production, aquaculture, and agri-support services playing significant roles.
- Each agribusiness sector faces distinct problems, ranging from soil quality deterioration and limited water resources in crop production to water and feed scarcity in animal production and environmental issues in aquaculture.
- Agribusiness significantly contributes to economic development, providing employment opportunities, generating income, and contributing to the region's GDP. It plays a vital role in food security and nutrition, establishing distribution networks, preserving food items, and supporting local food systems.
- Each agribusiness sector faces distinct problems, ranging from soil quality deterioration and limited water resources

in crop production to water and feed scarcity in animal production and environmental issues in aquaculture.

- Business plans are essential for addressing specific challenges in each sector, such as soil conservation and improved water access in crop production, efficient water management and adherence to best practices in animal production, waste control and community engagement in aquaculture, and value addition and financial access in agri-support services.

RECOMMENDATION

- Implement integrated programs focusing on soil conservation and improved water management practices in crop production.
- Develop comprehensive programs emphasizing efficient water management, diverse feed sources, and adherence to best practices in animal care and nutrition.
- Implement sustainable practices and effective waste management strategies in aquaculture operations.
- Focus on enhancing value addition processes and improving financial access for farmers in agri-support services and manufacturing. Overcome problems associated with inadequate value addition and limited access to credit, fostering economic growth, innovation, and technological advancement.
- Facilitate stakeholder collaboration, including farmers, policymakers, industry experts, and the local community, in the development and implementation of sector-specific business plans.

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