

Empowering Rural Livelihoods Through Bali Cattle Development in Tambrauw Regency West Papua

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ABSTRACT

This study aims to develop alternative strategies for the advancement of the Bali cattle industry in Tambrauw Regency through the identification of critical internal and external factors influencing its growth. The research was conducted over a two-month period employing a descriptive approach, with data collection facilitated through quota, purposive, and cluster sampling techniques. Analytical tools utilized include the SWOT (Strengths, Weaknesses, Opportunities, and Threats) framework and the Quantitative Strategic Planning Matrix (QSPM). The analysis identified effective marketing mechanisms as the principal internal strength of the local cattle industry, while limited access to capital emerged as a primary internal constraint. From an external perspective, supportive government policies were recognized as key opportunities, whereas livestock theft and poaching constituted significant threats to industry sustainability. Strategic priorities derived from the SWOT-QSPM analysis encompass capital reinforcement, enhancement of production quality and quantity, improved access to markets and information, development of livestock production systems based on local resources, and institutional capacity building through strengthened collaborative networks and human resource development. The recommended strategic alternatives include increasing access to financial resources, expanding business operations, and improving production efficiency. These strategies are expected to contribute to the sustainable development of the Bali cattle industry in Tambrauw Regency.

Keywords: *Bali cattle, Livestock empowerment, Rural livelihoods, Sustainable agriculture, West Papua*

BACKGROUND

Bali cattle (*Bos javanicus*) represent a strategic and highly potential commodity within Indonesia's livestock sub-sector. Their development is considered crucial in addressing the increasing demand for animal-derived food products, driven by population growth, rising income levels, and heightened public awareness regarding the importance of nutritious diets (Tadeta et al., 2016). As part of the broader agricultural sector, the livestock industry contributes significantly to national food security, economic growth, and rural livelihoods.

Indonesia has experienced a steady rise in beef consumption, which correlates with improvements in public welfare, education, and awareness of the nutritional value of animal protein (Sodiq et al., 2019). The Bali cattle breed, in particular, is recognized for its superior adaptability, efficient feed conversion, high fertility, disease resistance, and suitability for use as draft animals

Empowering Rural Livelihoods Through Bali Cattle Development (Pakage et al., 2026)

(Bandini, 2003; Sutama et al., 2017). These characteristics render Bali cattle an ideal breed for development in various regions across the Indonesian archipelago, including West Papua Province.

West Papua possesses favorable biophysical and agro-ecological conditions for the development of the Bali cattle industry. The region is endowed with extensive land resources, including approximately 75,000 hectares of grazing land in districts such as Bomberay (Fakfak Regency), Dataran Kebar (Tambrau Regency), and Salawati (Sorong Regency), identified for ranch-based cattle development under the "One Million Cattle Ranch Program" (Suprihadi, 2001). Moreover, the presence of 11,263 hectares of agricultural land and approximately 38,980 hectares of oil palm plantations offers significant potential for feed resource utilization, including crop residues and palm fronds. Population statistics of Bali cattle in West Papua further support the region's strategic importance. From 2014 to 2018, cattle populations fluctuated yet remained substantial, ranging from 61,436 heads in 2014 to 50,991 heads in 2018 (Badan Pusat Statistik Papua Barat, 2019). This trend underscores West Papua's role as both a livestock production zone and a contributor to national meat supply, particularly within eastern Indonesia. Tambrau Regency, located in the northern part of West Papua, has been identified as a promising hub for Bali cattle development. The area's availability of land, feed, and labor, coupled with socio-economic motivations to improve rural livelihoods, positions it strategically for targeted livestock development initiatives.

Livestock farming encompasses both production and financial management dimensions. Effective utilization of inputs and optimization of outputs are essential to improving profitability and ensuring the sustainability of livestock enterprises (Hafsah, 2016). However, inefficiencies in business planning and execution may hinder development, particularly in the absence of strategic alignment with prevailing environmental conditions. A strategic development plan must be grounded in comprehensive environmental analysis. This involves assessing both internal (strengths and weaknesses) and external (opportunities and threats) factors influencing the Bali cattle industry in Tambrau Regency. The SWOT analysis framework and subsequent formulation of strategies through tools such as the Quantitative Strategic Planning Matrix (QSPM) are instrumental in identifying competitive advantages and mitigating constraints (David & David, 2017). While Tambrau has considerable development potential, several inhibiting factors must be addressed. These include limited access to financial capital, market infrastructure, and technical knowledge, as well as socio-cultural dynamics that may influence participation in livestock enterprises. Additionally, livestock theft, lack of formal land ownership, and institutional inefficiencies may constrain development efforts (Tadeta et al., 2016; Purba et al., 2020).

Despite a number of studies addressing Bali cattle development in Indonesia, research focusing specifically on the strategic planning aspects of Bali cattle enterprises in remote and underdeveloped regions such as Tambrau Regency remains limited. Most previous studies have concentrated on technical productivity, genetic characteristics, or feed optimization, while strategic business development and institutional challenges in frontier regions have been relatively underexplored. Furthermore, the integration of environmental analysis tools like SWOT and QSPM in livestock planning at the regional level has not been widely applied in existing literature. This presents a critical research gap that this study aims to address.

The novelty of this research lies in its contextual approach to livestock development in Tambrau Regency by incorporating a holistic analysis that combines agro-ecological potential, socio-cultural realities, institutional dynamics, and strategic planning tools. This study contributes Empowering Rural Livelihoods Through Bali Cattle Development (Pakage et al., 2026)

new insights by offering a location-specific development model that integrates participatory planning and multi-stakeholder collaboration elements that have often been overlooked in prior research on Bali cattle development.

To harness the full potential of Bali cattle farming in Tambrauw Regency, it is imperative to formulate community-based development models that integrate local resource use, socio-cultural values, and institutional strengthening. Such models should aim to: Improve business management practices among local farmers, identify and address systemic barriers to livestock enterprise development, and develop context-appropriate strategies that align with regional development goals and national livestock programs. The integration of feed availability, land suitability, and human resource capacity will support sustainable livestock production systems in Tambrauw. Moreover, participatory planning and multi-stakeholder collaboration among government agencies, academic institutions, private investors, and local communities are essential for achieving long-term development objectives (Saragih & Subejo, 2021). This study discusses how the current management practices of Bali cattle farming businesses in Tambrauw Regency are; What are the factors that hinder the development of Bali cattle businesses in the region?; and What strategic approaches are suitable to encourage the sustainable development of the Bali cattle industry in Tambrauw Regency? By answering these questions, this study seeks to provide a comprehensive framework for the development of Bali cattle in Tambrauw Regency, with the aim of improving rural livelihoods and contributing to regional and national food security.

RESEARCH METHODS

This study was conducted in Tambrauw Regency, West Papua Province, over a period of two months, from October to November 2022. The research utilized a variety of instruments to support data collection and documentation. The tools included writing instruments, cameras, and field boards. The primary materials comprised structured questionnaires, annual reports and performance documents from the Tambrauw Regency Livestock Service, the Tambrauw Regency Livestock Development Master Plan, and the Master Plan of the Livestock and Animal Health Service of West Papua Province.

A descriptive research approach was adopted for this study. The sampling design included a combination of quota sampling and purposive sampling techniques. Sampling decisions were based on accessibility, practicality, and cost-effectiveness. A cluster sampling method was employed, beginning with the selection of specific districts, followed by the identification of representative villages and respondents within those clusters. Data collection was carried out through direct field observations and semi-structured interviews with key stakeholders and community members involved in Bali cattle farming.

The variables observed in this study are classified into three main categories:

1. Internal Factors – These refer to intrinsic elements influencing the development of the Bali cattle industry in Tambrauw Regency, encompassing strengths and weaknesses related to resources, management, infrastructure, and local capacity.

2. External Factors – These include extrinsic elements impacting the cattle industry, such as opportunities (e.g., policy support, market potential) and threats (e.g., livestock theft, environmental challenges).

3. Development Strategy – This refers to an integrated, comprehensive framework aimed at aligning internal strengths with external opportunities while addressing internal weaknesses and external threats, thus enabling the formulation of suitable and context-specific strategies for industry growth (Arbi, 2009; David & David, 2017; Wheelen & Hunger, 2012).

Data analysis was conducted in several stages to systematically identify strategic alternatives. The following structured strategic management tools were used, with methodological references:

- a. Internal Factor Evaluation (IFE) Matrix – used to assess and weight internal strengths and weaknesses. This tool helps quantify internal performance aspects, allowing the prioritization of factors based on expert judgment (David & David, 2017; Gurel & Tat, 2017).
- b. External Factor Evaluation (EFE) Matrix – used to evaluate and prioritize external opportunities and threats. It is essential for identifying external environmental forces that influence strategic decisions (Wheelen & Hunger, 2012).
- c. Internal-External (IE) Matrix – used to map the strategic position of the Bali cattle farming industry by combining the results of the IFE and EFE matrices (David & David, 2017).
- d. SWOT Analysis – a classic technique to categorize key factors into strengths, weaknesses, opportunities, and threats. The use of SWOT in agricultural and livestock development has proven effective in aligning development planning with contextual realities (Helms & Nixon, 2010; Gurel & Tat, 2017).
- e. Quantitative Strategic Planning Matrix (QSPM) – employed to objectively evaluate and rank strategic alternatives. QSPM assigns attractiveness scores to each strategy to aid in the selection of the most feasible and beneficial approach. This method has been successfully applied in rural development and agribusiness planning (David & David, 2017; Shrestha et al., 2004)

RESULT AND DISCUSSION

Based on observations, interviews and literature studies that have been carried out on activities and various efforts to develop Bali cattle in Tambrauw Regency, internal factors and external factors are explained as follows.

Internal factors

The internal factors that were carried out were to determine the strengths and weaknesses possessed in the development of Bali cattle in Tambrauw Regency, West Papua Province. These internal factors are presented in table 1.

Table 1. Internal factors for the development of Bali cattle in Tambrauw Regency

Strength (S)		Weakness (W)	
1	Culture of raising cattle	1	There is no source of funds or cost of capital
2	Availability of local feed or natural resources and water availability.	2	Lack of knowledge and skills in raising livestock
3	Cattle marketing	3	Customary Disputes/Claims

Strength (S)	Weakness (W)
4 Means of transportation	4 The housing system is still simple
5 Availability of land	5 Cattle waste has not been utilized

Source: Processed Primary Data, 2022

Table 1 highlights key internal factors that play a crucial role in the sustainability and development of the Bali cattle industry in Tambrauw Regency. Understanding and addressing these factors will help maximize benefits and ensure the long-term viability of the sector. The key aspects are outlined as follows:

- 1. Historical and Cultural Influence on Cattle Farming.** Although Tambrauw Regency was officially designated as an autonomous region (DOB) in 2008, Bali cattle have been present in the area, particularly in Kebar, since 1975. This long-standing presence has shaped local cattle-rearing practices and integrated livestock farming into community traditions. The demand for Bali cattle has increased significantly, particularly for family events and customary transactions such as dowry payments and fines. These cultural practices make Bali cattle farming a highly promising economic venture. If properly managed as a commercial enterprise, Bali cattle breeding can contribute to income generation and serve as a potential solution for reducing unemployment.
- 2. Abundant Natural Grazing Resources.** Tambrauw Regency benefits from extensive grazing land, supported by the "One Million Ranch" program. The availability of natural pastures and agricultural by-products, including grasses, legumes, corn, and vegetable waste, provides a sustainable source of livestock feed. Various high-quality forage species, such as king grass (*Pennisetum purpureum*), elephant grass, iris grass (*Sorghum spp.*), and Mexico grass, as well as leguminous plants like *Chyratro*, *Glyricidia*, *Turi*, *Lamtoro*, and *Calliandra*, grow abundantly in the region. With thousands of hectares of grazing land, Tambrauw Regency has the potential to optimize Bali cattle production, ensuring a stable and sustainable livestock industry.
- 3. Technological Advancements in Cattle Farming and Marketing.** The advancement of cattle farming and marketing technology has strengthened the Bali cattle industry in Tambrauw Regency. In particular, the well-developed Trans Papua Barat road network enhances the accessibility and affordability of cattle distribution. This infrastructure facilitates the transportation of Bali cattle to various districts and cities in West Papua, improving market reach and increasing sales opportunities for local breeders.
- 4. Strategic Location as a Transit Hub for Cattle Trade.** The construction of the Trans Papua Barat (Manokwari-Sorong) road, which is a regional priority, is expected to transform Tambrauw Regency into a key transit hub for inter-regional trade. This connectivity links Tambrauw with Manokwari, Arfak Mountains, Maybrat, South Sorong, Sorong Regency, and Sorong City. The improved transportation network will create opportunities for Bali cattle trade across these regions, further supporting the development and expansion of the local livestock sector.
- 5. High Potential for Bali Cattle Development in West Papua.** West Papua Province is recognized as a strategic location for Bali cattle development, primarily due to its vast land resources and abundant livestock forage and agricultural waste available year-round (Bandini, 2003). The availability of natural resources, combined with ongoing infrastructure development and market

demand, positions Tambrauw Regency as a key player in the Bali cattle industry in eastern Indonesia.

By leveraging these internal strengths, the Bali cattle business in Tambrauw Regency can be further developed into a competitive and sustainable livestock sector. Proper management of these factors will ensure economic benefits for local farmers while supporting regional agricultural development.

The Kebar Plain in Tambrauw Regency encompasses approximately 8,000 hectares of designated grazing land, officially recognized as a Bali cattle farming area and a key component of the "One Million Ranch" program in West Papua Province (Suprihadi, 2001). With an extensive land area and a significant portion of unused land still available, Tambrauw Regency possesses substantial potential for the expansion of Bali cattle farming. Therefore, land availability does not present a significant limitation to the development of Bali cattle enterprises in the region. Although certain areas within the regency are characterized by less favorable land conditions such as barren, idle, or unevenly contoured land effective land management, proper feeding strategies, and improved maintenance techniques can significantly enhance livestock productivity. Well-managed livestock operations can lead to the sustainable growth of the Bali cattle industry, maximizing the region's agricultural potential.

This perspective aligns with the findings of Abun et al. (2008), who identified three critical factors influencing successful livestock farming: genetics, feed availability, and management practices. Among these, feed is the most influential factor, as it directly impacts livestock production, growth rates, and overall physiological well-being. Additionally, the sustainability of cattle farming particularly the ability to maintain and replenish livestock for commercial purposes is closely linked to the availability of breeding stock with superior genetic traits. In cattle breeding, the number and quality of breeding stock play a crucial role in determining fluctuations in livestock population, ultimately influencing the success and long-term viability of the Bali cattle industry. By optimizing land use, ensuring a steady supply of high-quality feed, and implementing effective breeding strategies, Tambrauw Regency has the potential to establish itself as a major hub for Bali cattle farming in West Papua. Several internal factors present challenges to the development of Bali cattle farming in Tambrauw Regency, West Papua. These weaknesses must be addressed to ensure the long-term sustainability and economic viability of the industry.

1. **Subsistence-Oriented Livestock Farming.** Cattle farming in Indonesia largely operates as a subsistence-based activity rather than an economically oriented business. Small-scale farmers often face constraints such as limited capital, insufficient knowledge, and inadequate technical skills related to reproduction, nutrition, post-harvest processing, environmental sanitation, and disease prevention. Moreover, a lack of understanding of livestock trading systems affects their ability to maximize profits in proportion to their efforts in cattle rearing (Surani, 2011).
2. **Limited Farmer Knowledge and Skills.** The low productivity of Bali cattle is directly linked to the limited knowledge and technical skills of farmers, particularly in areas such as breeding, feeding management, and disease control. Many cattle farmers in Tambrauw Regency have yet to acquire the necessary expertise to effectively manage their livestock. Additionally, a cultural transition from pig farming to Bali cattle rearing has resulted in gaps in proper husbandry practices. Therefore, targeted training and technical guidance are crucial to enhancing the productivity of Bali cattle farming in the region.

3. **Underdeveloped Veterinary and Livestock Support Services.** While facilities such as the Animal Feed Breeding and Forage Center (BPHPT) and the Animal Health Center (Puskeswan) exist, they remain inactive due to a shortage of trained personnel, including veterinarians and animal health specialists. The lack of professional veterinary services limits disease prevention and treatment efforts, further constraining livestock productivity.
4. **Suboptimal Housing and Management Practices.** Traditional cattle rearing methods in Tambrauw Regency still rely on simple, occasional systems, where cattle are not optimally housed in pens. This lack of proper housing makes it difficult to monitor and control livestock health, reproduction rates, and overall productivity. Implementing improved penning systems and structured management practices is essential for the advancement of Bali cattle farming.
5. **Environmental Impact of Untreated Livestock Waste.** The community has limited awareness of the environmental impact caused by unmanaged cattle waste. Currently, waste from Bali cattle farms is often disposed of in surrounding areas without proper treatment, leading to environmental pollution, groundwater contamination, and potential health hazards for both livestock and humans. The accumulation of untreated waste can also cause odor issues and provoke community complaints, particularly in areas close to residential zones.

However, cattle waste holds potential economic value if properly managed. By processing waste into organic fertilizer (both solid and liquid) or converting it into biogas, farmers can turn a challenge into an opportunity. The availability of raw materials for waste management presents a viable approach to increasing productivity while mitigating environmental risks (Saputro, 2014). Addressing these weaknesses through farmer education, improved veterinary services, better management practices, and sustainable waste management strategies will significantly contribute to the successful development of the Bali cattle industry in Tambrauw Regency.

External Factors

Identification of external factors was carried out to find out the opportunities and threats faced by the development of Bali cattle in Tambrauw Regency. Various external factors that are predicted to influence the development of Bali cattle in Tambrauw Regency are presented in Table 2.

Table 2. External Factors for Bali Cattle Development in Tambrauw Regency

Opportunities (O)		Threats (T)	
1	High market demand and supply	1	Meat products imported from outside Tambrauw
2	Government support in terms of policy assistance	2	High livestock production costs
3	A farmer group has been formed	3	Livestock safety (Theft and poaching)
4	Traditional activities that utilize cattle	4	Outbreaks of cattle disease that cannot be resolved
5	Mapping of land that is functioned for cattle	5	Outside investors with large capital

Source: Processed Primary Data, 2022

Table 2 presents key external factors that serve as opportunities for the development of Bali cattle in Tambrauw Regency: **Increasing Population and Demand for Livestock Products.**

The continuous population growth in West Papua Province has led to a rising demand for livestock products, including meat, eggs, and milk. Additionally, improving economic conditions and increasing public awareness regarding nutritional fulfillment, particularly in terms of animal protein, have further contributed to this demand. Among the most widely consumed sources of animal protein is beef. Consequently, the growing demand for beef in Tamberau Regency presents a strategic opportunity for the expansion of Bali cattle farming in the future.

Extensive Grazing Land and Government Support. The availability of approximately 8,000 hectares of grazing land in Dataran Kebar, Tamberau Regency, serves as a vital resource for Bali cattle cultivation under the Ranch system, aligning with the "One Million Ranch Earth" program in West Papua Province (Supriyadi, 2001). Furthermore, both provincial and district governments actively support local communities, providing necessary resources to encourage sustainable cattle farming. This assistance is expected to be effectively managed by the community for long-term development.

Institutional Support for Livestock Development. The presence of livestock-related institutions plays a crucial role in supporting the Bali cattle industry in Tamberau Regency. These institutions include livestock farmer groups, service agencies, and government programs at both central and regional levels. Although numerous breeder groups have received capital assistance and Bali cattle stock, the distribution of this support has been uneven. Some regions have consistently benefited from aid, enabling them to reinvest and distribute cattle to other groups. National programs such as the SMD (Bachelor of Village Development) initiative and the "One Million Ranch" program, which are primarily focused on Kebar and East Kebar Districts, further contribute to the sector's growth.

Cultural Significance and Economic Potential. The customary use of Bali cattle in dowry payments and traditional fines in Tamberau Regency makes cattle farming a highly lucrative business. This practice presents a significant opportunity for breeders to generate income while contributing to social and economic stability. If properly structured as a commercial enterprise, Bali cattle farming has the potential to reduce unemployment and enhance community livelihoods.

Land Mapping and Regional Development. The identification and allocation of specific land areas for cattle farming represent another opportunity for expanding Bali cattle breeding in Tamberau Regency. Several districts, including Yembun, Fef, Amberbakem, Mubrani, and Sausapor, have been designated for livestock development, particularly for Bali cattle breeding. Meanwhile, established breeding areas such as Kebar, East Kebar, and Snopi Districts have demonstrated strong potential and require further enhancement to maximize productivity. These external opportunities underscore the significant potential for Bali cattle farming in Tamberau Regency. By leveraging these advantages and implementing effective development strategies, the sector can be further expanded to support both economic growth and local community welfare.

Several external factors pose potential threats to the sustainability and growth of the Bali cattle industry in Tamberau Regency, including: **Competition from Imported Meat Products.** The influx of imported meat products such as frozen chicken and eggs from outside Tamberau Regency has influenced consumer purchasing power, reducing the demand for beef. This market shift pressures local farmers to sell their cattle individually, which may disrupt market stability and profitability.

High Production Costs. The cost of producing Bali cattle in Tamberau Regency remains relatively high. Production costs encompass all expenses incurred by breeders, including feed, healthcare, and Empowering Rural Livelihoods Through Bali Cattle Development (Pakage et al., 2026)

operational costs necessary to maintain livestock and ensure output productivity (Saleh, 2017). These financial constraints pose a significant challenge to small-scale breeders in maintaining business sustainability. **Security Risks Along Trade Routes.** The development of transportation infrastructure connecting cities within West Papua facilitates trade and distribution of Bali cattle. However, this increased accessibility also raises concerns regarding livestock security. The high incidence of cattle theft and poaching along the West Papua trans-road, particularly in Tambrauw Regency, poses a substantial risk to breeders, threatening their economic stability. **Limited Functionality of Livestock Support Facilities.** Although Tambrauw Regency has livestock support facilities, such as the Animal Feed Breeding and Forage Center (BPHPT) and the Animal Health Center (Puskesmas), these facilities remain underutilized due to a lack of staff, veterinarians, and medical personnel. As a result, disease prevention and treatment for Bali cattle remain suboptimal, potentially leading to higher mortality rates and reduced livestock productivity. **Market Domination by Large-Scale Investors.** The entry of external investors with substantial capital presents a competitive threat to local Bali cattle breeders. These large-scale business entities often establish well-funded livestock enterprises, allowing them to dominate the market. This situation may marginalize small-scale breeders, making it increasingly difficult for them to compete and sustain their businesses in the long run.

Addressing these challenges requires strategic interventions, including strengthening breeder support systems, improving livestock security measures, optimizing production efficiency, and ensuring equitable market participation for local farmers.

Matrix IFE

Evaluation of the influence of strengths and weaknesses (IFE) in the effort to develop Bali cattle in Tambrauw Regency based on the IFE Matrix, the results are as shown in table 3.

Table 3. IFE Matrix for Development of Bali Cattle in Tambrauw Regency

INTERNAL FACTORS	Weight (a)	Rating (b)	Score (c = axb)
Strength			
Culture of raising cattle	0.09	2.58	0.24
Availability of local feed or natural resources and water availability	0.11	3.00	0.33
Cattle marketing	0.15	4.00	0.58
Means of transportation	0.11	3.11	0.35
Availability of land	0.12	3.42	0.43
Weakness			
There is no source of funds or cost of capital	0.08	2.26	0.19
Lack of knowledge and skills in raising livestock	0.07	1.97	0.14
Customary disputes/claims	0.09	2.47	0.22
The housing system is still simple	0.09	2.42	0.21
Cattle waste has not been utilized	0.08	2.21	0.18
Total	1.00		2.87

Source: Processed Primary Data, 2022

Matriks EFE

The EFE matrix is used as an evaluation of the opportunities and threats in the marketing strategy for Bali cattle in Tambaauw Regency.

Table 4. EFE Matrix

EXTERNAL FACTORS	Weight (a)	Rating (b)	Score (c = axb)
Opportunity			
High market demand and supply	0.12	3.37	0.42
Government support in terms of policy assistance	0.13	3.55	0.47
A farmer group has been formed	0.12	3.24	0.39
Traditional activities that utilize cattle	0.12	3.16	0.37
Mapping of land that is functioned for cattle	0.11	3.03	0.34
Threat			
Production and external meat products, which are consumed	0.07	2.03	0.15
Increase in livestock production costs	0.07	2.00	0.15
Violation of theft of raising cattle	0.09	2.37	0.21
Outbreaks of disease on cattle rearing	0.08	2.08	0.16
Outside investors with large capital	0.08	2.21	0.18
Total	1.00		2.83

Source: Processed Primary Data, 2022

The results of the Internal Factor Evaluation (IFE) matrix analysis indicate that the total score for all internal factors is 2.87. This score suggests that, from an internal perspective, the development of Bali cattle in Tambaauw Regency is in a strong position, signifying growth and stability within the range of 2.00–2.99. These findings align with the study conducted by Rumpaidus, J. P., Wajo, M. J., and Pakage, S. (2020) in Arfak Mountains District. The region’s strengths primarily lie in its well-established Bali cattle marketing channels, the availability of grazing land, natural feed resources, and sufficient water supply. However, certain weaknesses persist, such as limited knowledge and skills in livestock management and the underutilization of cattle waste.

Similarly, the External Factor Evaluation (EFE) matrix analysis yields a score of 2.83, indicating that Tambaauw Regency is in a favorable growth position, responding effectively to external opportunities and threats. This score (within the 2.00–2.99 range) confirms that the Bali cattle development sector remains stable and continues to expand. The most significant opportunity arises from high market demand for Bali cattle, which necessitates further business expansion. Additionally, the steady growth of the livestock sub-sector, stable product prices, and the opening of local and regional markets further support the industry’s development. Nonetheless, certain threats must be addressed, including rampant poaching, the limited availability of veterinarians, and livestock health concerns. Given this situational analysis, it is essential to establish an alternative strategy for Bali cattle business development using a SWOT analysis. This approach builds upon the findings of the IFE and EFE analyses by integrating internal and external factors. The formulation of alternative strategies through the SWOT matrix provides a comprehensive framework for guiding the sustainable development of the Bali cattle industry in Tambaauw Regency. The detailed results of the SWOT matrix analysis can be found in Table 10.

IE Matrix (Internal-External)

The IE (Internal-External) matrix is based on two key dimensions, namely the total score of the IFE matrix on the x-axis and the total score of the EFE matrix on the y-axis. The IE matrix can identify

9 strategy cells and can be grouped into the main strategies, namely growth strategy, stability strategy and retrenchment strategy. According to Rangkuti (2008), the total weighted scores for IFE and EFE are: 1. Strong: 3.00 – 4.00; 2. Average: 2.00 – 2.99; 3. Weak: 1.00 – 1.99. The results showed that the strategy found was a growth strategy

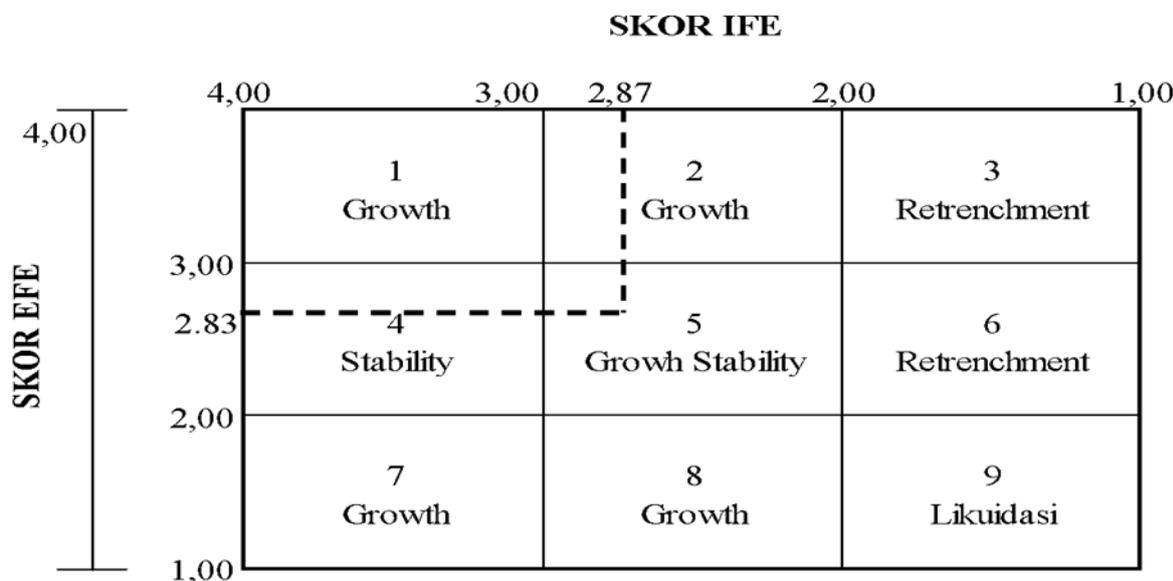


Figure 1. IE Matrix Diagram

The results of the calculations that have been carried out, then the final value is obtained from the internal factors, namely strengths and weaknesses, as well as external factors, namely opportunities and threats, as in table 4 with the score obtained as follows:

Table 4. Recapitulation of IFE and EFE Development of Bali Cattle in Tambrauw Regency

No	Description	Mark
1	Internal factors	
	Strength	3.91
	Weakness	2.78
2	External Factors	
	Opportunity	2.93
	The result	2.61

Source: Processed Primary Data, 2022

From the recapitulation results in table 4 above, the overall strategy can be identified by using the best possible opportunities, trying to minimize weaknesses, using the level of strength as the main capital and suppressing the threats that exist in the marketing of Bali cattle in Tambrauw Regency.

SWOT Matrix Strategy

Strategy formulation is carried out by combining various factors that have been identified and grouped. The results of the formulation of the SWOT strategy are grouped into four groups consisting of strengths and opportunities (SO) strategies, strengths and threats (ST) strategies, weaknesses and opportunities (WO) strategies and weaknesses and threats (WT) strategies, according to Figure 2.

<p>Internal factors</p> <p>External Factors</p>	<p>Strength Factor (S) S1 = Cattle rearing culture S2 = Availability of local feed or natural resources and availability of water S3 = Marketing of cattle S4 = Means of Transportation S5 = Availability of Land</p>	<p>Weakness Factor (W) W1 = There is no source of funds or cost of capital W2 = Lack of knowledge and skills in raising livestock W3 = Indigenous Disputes/Demands W4 = The housing system is still simple W5 = Cattle waste has not been utilized</p>
<p>Opportunity Factor (O) O1 = High market demand and supply O2 = Government support in terms of assistance policy O3 = A farmer group has been formed O4 = Traditional activities that use cattle O5 = Mapping of land that is used for cattle</p>	<p>SO (aggressive) strategy</p> <ol style="list-style-type: none"> 1. Increasing the population of Bali cattle (O1,O2,O3,O4,O5; S1,S2,S3,S4,S5) 2. Increasing the quality and quantity of Bali cattle (O1, O2, O4, O5; S2, S3, S5) 3. Strengthening capital to be able to compete with outside breeders (O1,O4,O5 ; S2,S3, S4,S5) 4. Forage Utilization and Feed Processing Technology (O1,O3,O4; S2, S3,S4,S5) 5. Adding and preparing livestock technical personnel and making livestock regulations (O1, O2, O3, O4, O5; S2, S3, S4, S5) 	<p>WO (diversification) strategy</p> <ol style="list-style-type: none"> 1. Avoid consuming external meat and meat product diversity (O1,O2,O3,O4; W1,W3, W4) 2. Conducting training and education in the livestock sector in the progress of advancing livestock (O1, O2, O3, O4, O5; W1, W3, W4, W5) 3. Developing livestock based on local resources and initiating a Bali cattle breeding company (O1,O2,O3,O4,O5; W1,W2,W3,W4,W5) 4. Increasing cultural benefits in cattle promotion (O1,O2,O3,O5; W1,W3,W4,W5) 5. Formation of community health centers in equal areas of Bali cattle (O1, O2, O3, O4, O5; W1, W2, W3, W4, W5)
<p>Threat Factor (T) T1 = Meat products imported from outside Tambda T2 = High livestock production costs T3 = Livestock safety (Theft and poaching) T4 = Outbreak of cattle disease that cannot be resolved T5 = Cattle waste has not been utilized</p>	<p>ST strategy (differentiation)</p> <ol style="list-style-type: none"> 1. Conducting cattle breeding business development and increasing livestock and veterinary graduates (T1,T2,T3,T5 ; S1,S2,S3,S4,S5). 2. Improving services in the marketing of cattle (T1, T3, T5; S1, S2, S5). 3. Creating a conducive situation in employment opportunities for breeders (T1, T2, T3, T5 ; S2, S3, S4). 4. Increasing counseling on cattle and field schools through the Regional Government (T1, T2, T3, T4, T5; S1, S2, S3, S4, S5) 5. Maximizing technology and cultural innovation of Bali cattle farming (T1, T3, T4, T5; S1, S3, S4, S5) 	<p>WT Strategy (defensive)</p> <ol style="list-style-type: none"> 1. Collecting data and compiling a pig livestock marketing information system (T1, T2, T3, T4, T5; W1, W2, W3, W4, W5). 2. Improving human resources for Veterinarians (T1,T3,T4 ; W1,W2,W3,W4). 3. Improving the network of institutions and other livestock institutions to ensure livestock safety (T1, T2, T3, T4, T5; W2, W3, W4). 4. Doing a cattle rowing pattern and a cattle breeding center (T1, T2, T3, T5; W1, W2, W3, W4, W5). 5. Introducing and forming quality livestock centers in Tambda Regency (T1,T2,T3,T4,T5; W1, W2,W3, W4,W5).

Figure 2. Marketing Strategy Formulation with SWOT Matrix

Based on Figure 2 above, the SO strategy produces the highest weight, where this strategy utilizes all strengths to take and take advantage of the greatest opportunities. The SO strategy based on the SWOT matrix has the following strategies:

QSPM Strategy Analysis(Quantitative Strategic Planning Matrix)

The determination of priority strategies is carried out based on the results of alternative strategies resulting from a qualitative SWOT matrix with an analysis of the QSPM matrix, with the following order and priority:

Table 5. Strategic Priority Order and QSPM Matrix

No	Alternative Strategy	Total value
1	Strengthen the capital for the Bali cattle business	5.86
2	Improving the quality of Bali cattle	5.34
3	Expanding the Bali cattle business	5.06
4	Increase sales volume of Bali cattle	4.70
5	Provide information in increasing sales	4.66
6	Develop livestock based on local livestock resources	4.64
7	Carrying out development of Bali cattle business	4.36
8	Improving services in the marketing of Bali cattle	4.30
9	Creating a conducive situation in the marketing of Bali cattle	4.27
10	Develop a marketing information system for Bali cattle	4.19
11	Improving the quality of human resources	4.10
12	Increase the partnership network	4.06

Source: Processed Primary Data, 2022

Enhancing Financial Capital for Bali Cattle Agribusiness. Expanding the scale of Bali cattle farming at the breeder level can be achieved through the utilization of financial institutions in Tambrauw Regency. Financial institutions, particularly the banking sector in Tambrauw Regency, offer accessible financial support in the form of soft loans with simplified procedures. These financial resources enable breeders to expand their Bali cattle business efficiently. For instance, breeders can increase the number of Bali cattle and improve livestock facilities to achieve an optimal livestock composition that maximizes profitability. This aligns with Barokah (2009), who emphasizes the importance of strengthening and optimizing the role of financial institutions in improving cattle management practices among farmers.

The findings highlight that financial institutions in Tambrauw Regency, especially banks, play an important role in enabling farmers to access soft loans with simplified procedures. These loans are used to expand scale, improve infrastructure, and optimize livestock composition to increase profitability. This is in line with Barokah (2009), who underlines the importance of strengthening and optimizing financial institutions to improve livestock management. This study confirms and extends Barokah's conclusions by providing specific regional evidence from Tambrauw, where simplified banking procedures make financial capital more accessible, thereby contributing to more inclusive livestock development.

Increasing the Quantity and Quality of Bali Cattle Products. One of the key strategies in Bali cattle marketing involves improving cattle quality by expanding existing businesses. This can be achieved by increasing the production of Bali cattle through direct breeding or by sourcing calves from external regions. Tambrauw Regency possesses a significant advantage due to its abundant natural feed resources and extensive grazing land, which contribute to the enhancement of Bali cattle quality. These

natural resources facilitate rapid weight gain in cattle, thereby increasing profitability for breeders while minimizing feed costs. Proper feed provision and nutritional management play a crucial role in the growth and development of Bali cattle, ensuring they reach an optimal market ready condition.

This study emphasizes the natural resource advantages (abundant feed and grazing land) in Tambauiw that facilitate improved livestock quality and expanded production. These resources contribute to lower feed costs and higher weight gain, which are important for profitability and market readiness. This finding is consistent with studies such as Utama (2014), which states that natural resource endowments significantly affect livestock productivity. While previous studies often generalize the impact of resources, this study provides local confirmation that environmental suitability in Tambauiw creates favorable conditions for quality improvement in Balinese cattle agribusiness.

Market Dynamics and Growth Potential of Bali Cattle in Tambauiw Regency. The market functions as a fundamental mechanism for transactions between buyers and sellers and plays a crucial role in the marketing of Bali cattle in Tambauiw Regency. Due to the region's limited population, there is a significant demand for livestock from external areas. However, constraints faced by small-scale breeders often lead to large-scale traders with substantial capital dominating the market. A notable development in this sector is the establishment of a livestock market supported by the regional government, particularly the Tambauiw Regency administration, which provides bailout funds to facilitate the purchase of Bali cattle from local breeders. This bulk purchasing system enhances marketing efficiency by optimizing sales patterns in response to prevailing market conditions.

The Tambauiw market is characterized by limited local demand and the dominance of capital rich traders, which marginalizes small-scale farmers. However, the introduction of a government-supported livestock market and a bridging fund system helped optimize marketing channels and offered a mechanism for farmers to better engage in bulk sales. These observations complement the findings of Hendayana et al. (2012), who identified market inefficiencies and capital constraints as key barriers for small-scale farmers. However, this study advances this by showing how regional policy interventions (such as bridging funds and government-supported markets) reduced these barriers in Tambauiw. This highlights the importance of institutional innovation in enhancing market participation among rural farmers.

This analysis indicates that the Bali cattle industry has substantial growth potential in the future, given the increasing market demand and supply chain tracking mechanisms. To remain competitive, breeders must continuously improve both the quantity and quality of their cattle. This can be achieved through the adoption of efficient production techniques, including the implementation of appropriate livestock management systems that enhance breeder income by increasing cattle body weight within a shorter rearing period. Additionally, price efficiency can be attained by optimizing production costs, thereby ensuring higher selling prices for Bali cattle products.

CONCLUSION AND SUGGESTION

The internal factor that is the biggest strength in the Bali cattle business in Tambauiw Regency is the marketing of cattle with a value of 0.58 and the biggest weakness is (0.14). While the external factors that are the biggest opportunities in the Bali cattle business in Tambauiw Regency are government support in terms of policy assistance with a value of 0.47 and the main threat in this business is livestock safety (theft and poaching) with a value of (0.21). The strategies for the Bali cattle business in Tambauiw Regency are 1. Strengthening capital for the Bali cattle business, 2. Improving the quality and quantity of Bali cattle business results, 3. Providing information to increase sales, 4. Developing livestock based on local livestock resources, 5. Conducting business development for Bali cattle to breeders, 6. Creating a conducive situation in Bali cattle marketing, 7. Developing a marketing information system for Bali cattle, 8. Improving the quality of human resources and improving partnership networks. Alternative strategies carried out through the results Empowering Rural Livelihoods Through Bali Cattle Development (Pakage et al., 2026)

of calculations in the QSPM matrix are as follows a) strengthening capital for the Bali cattle business to obtain a value of 5.86, b) expanding the Bali cattle business with a value of 5.34 and c) increasing the quality and quantity of Bali cattle production with a value of 5.06.

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