JACE (Journal of Agribusiness and Community Empowerment)
Published by Politeknik Pertanian Negeri Payakumbuh
http://jaceppnp.org/index.php/jace/
ISSN 2655-4526 (online) 2655-2965 (print)

Info:
Received 03 08 2025
Revised 26 09 2025
Published 30 09 2025

Identification of Business Management, Marketing Patterns, and Bali Cattle Population in Tani Bhakti Village, East Kalimantan

Identifikasi Manajemen Usaha, Pola Pemasaran, dan Dinamika Populasi Sapi Bali di Desa Tani Bhakti, Kalimantan Timur

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Abstract

Bali cattle constitute an important indigenous genetic resource that contributes to food security, rural household income, and the socio-economic resilience of farming communities. In East Kalimantan, the population of Bali cattle increased by 4% in 2023. The sector continues to face persistent structural challenges, particularly weak business management, dependence on conventional marketing systems, and inefficiencies in herd population management. This study examined business management practices, marketing patterns, and population dynamics of smallholder Bali cattle farming in Tani Bhakti Village, Loa Janan District, Kutai Kartanegara Regency, East Kalimantan. Primary data were obtained through direct observation and structured interviews with 20 farmers selected by census, and secondary data were collected from government reports, statistical publications, and relevant academic literature. A descriptive qualitative approach was applied, and results were analyzed and presented in tabular and narrative forms. The findings reveal that most farmers rely on traditional rearing and feeding practices. At the same time, intermediary-based marketing channels dominate cattle transactions, reducing farmers' bargaining power and profit margins. Moreover, reproductive performance remains low, and feed quality does not meet optimal nutritional standards, constraining productivity and herd sustainability. These conditions underscore the urgent need for technological innovation in farm management, the development of structured and digitally oriented marketing systems, and improvements in reproductive management and feed practices. The results provide empirical evidence to support the design of adaptive, inclusive, and sustainable livestock development policies that enhance the competitiveness and long-term viability of rural Bali cattle farming in East Kalimantan.

Keywords: business management, marketing patterns, livestock population, Bali cattle

Abstrak

Sapi Bali merupakan sumber daya genetik lokal penting yang berkontribusi terhadap ketahanan pangan, pendapatan rumah tangga pedesaan, dan ketahanan sosial ekonomi komunitas petani. Di Kalimantan Timur, populasi sapi Bali meningkat sebesar 4% pada tahun 2023. Sektor ini masih menghadapi tantangan struktural yang persisten, khususnya lemahnya manajemen usaha, ketergantungan pada sistem pemasaran konvensional, dan inefisiensi dalam pengelolaan populasi ternak. Penelitian ini mengkaji praktik manajemen usaha, pola pemasaran, dan dinamika populasi pada usaha ternak sapi Bali rakyat di Desa Tani Bhakti, Kecamatan Loa Janan, Kabupaten Kutai Kartanegara, Kalimantan Timur. Data primer diperoleh melalui observasi langsung dan wawancara terstruktur dengan 20 peternak yang dipilih secara sensus, dan data sekunder dikumpulkan dari laporan pemerintah, publikasi statistik, serta literatur akademik yang relevan. Pendekatan deskriptif kualitatif diterapkan, dan hasil dianalisis serta disajikan dalam bentuk tabel dan narasi. Hasil Penelitian menunjukkan bahwa sebagian besar peternak masih bergantung pada praktik pemeliharaan dan pemberian pakan tradisional. Pada saat yang sama, saluran pemasaran berbasis perantara mendominasi transaksi ternak, sehingga mengurangi daya tawar dan margin keuntungan peternak. Selain itu, kinerja reproduksi tetap rendah, dan kualitas pakan belum memenuhi standar nutrisi optimal, yang membatasi produktivitas dan keberlanjutan populasi. Kondisi ini menegaskan urgensi inovasi teknologi dalam manajemen usaha ternak, pengembangan sistem pemasaran yang terstruktur dan berorientasi digital, serta perbaikan dalam manajemen reproduksi dan praktik pemberian pakan. Hasil penelitian ini

memberikan bukti empiris untuk mendukung perancangan kebijakan pembangunan peternakan yang adaptif, inklusif, dan berkelanjutan guna meningkatkan daya saing dan keberlanjutan jangka panjang usaha sapi Bali rakyat di Kalimantan Timur.

Kata Kunci : *manajemen usaha, pola pemasaran, populasi ternak, sapi Bali*

Introduction

Livestock farming plays a pivotal role in ensuring food security, generating rural household income, and sustaining the socio-economic structure of agrarian communities in developing countries (Maleko et al., 2018). In Indonesia, Bali cattle are recognized as one of the most important indigenous genetic resources due to their adaptability, meat quality, and cultural value, making them a cornerstone of smallholder-based livestock production systems (Widiarta et al., 2024). These cattle contribute significantly to household livelihoods and hold strategic importance in strengthening regional livestock-based economies. Within this national context, the Bali cattle sector has become a key component in supporting food security and sustaining the rural economy of Kutai Kartanegara Regency, East Kalimantan. According to the Central Statistics Agency (BPS East Kalimantan, 2023), the Bali cattle population in the province reached approximately 520,000 head in 2023, representing a 4% increase compared to the previous year. This quantitative growth underscores the potential of Bali cattle as a sustainable livestock resource for the region. Nevertheless, the sector continues to face structural constraints, particularly weak business management practices, inefficiencies in marketing systems, and sustainability challenges in herd population management (Nainggolan et al., 2024; Tanzil et al., 2025)

Bali cattle farming in rural areas is still predominantly managed through traditional practices, such as free grazing and manual feed provision. The Department of Animal Husbandry and Veterinary Services of East Kalimantan (2022) reported that productivity levels remain low despite the increasing population. In 2022, the productivity of Bali cattle was recorded at only 4.5 tons per hectare in the province, a level far below the potential that could be attained through the implementation of technology-based practices. Tumewu & Lainawa (2025) emphasized that the adoption of modern management systems has the potential to increase productivity by more than 15% under similar conditions. These findings underscore the urgent necessity of implementing transformative changes in farm-level management practices in order to enhance production efficiency and sectoral competitiveness.

The marketing system of Bali cattle in Kutai Kartanegara is also marked by structural inefficiencies. Approximately 70% of livestock transactions in the regency remain under the control of intermediaries (Department of Agriculture and Animal Husbandry of Kutai Kartanegara, 2023). This dependence significantly weakens farmers' bargaining power and limits their ability to secure optimal market value. Tanzil et al. (2025) demonstrated that the integration of digital marketing platforms could enhance the efficiency of distribution systems and broaden market access for smallholders. The utilization of digital marketing channels enables farmers to achieve better pricing transparency and strengthen their position in the value chain. These findings indicate that the establishment of a structured and technology-oriented marketing system is essential for enhancing the competitiveness of Bali cattle products in both domestic and international markets.

Livestock population management represents another critical determinant of the sustainability of the Bali cattle sector. The Department of Animal Husbandry and Veterinary Services of East Kalimantan (2023) reported a 3% decline in the Bali cattle population in Kutai Kartanegara in 2023 compared to the previous year. This decline was primarily attributable to health-related problems and limited access to quality feed. Nainggolan et al. (2024) argued that inadequate population management increases production costs and reduces livestock quality, thereby negatively affecting farmer incomes. Addressing these challenges requires the implementation of more effective management strategies, including systematic disease control, regular vaccination programs, and improvements in feed quality to ensure long-term productivity and sectoral sustainability.

The interaction of business management practices, marketing structures, and livestock population dynamics simultaneously shapes Bali cattle farming in Kutai Kartanegara. Weaknesses in business management, such as traditional husbandry and feeding practices, directly affect reproductive performance and herd productivity. At the same time, dependence on intermediary-

based marketing channels reduces farmers' bargaining power and constrains income generation, limiting their capacity to reinvest in better management systems. Inefficient population management, reflected in low birth rates and suboptimal feed quality, further exacerbates these challenges, creating a cycle of low productivity and limited profitability. These interrelated problems illustrate that improvements in one dimension cannot be achieved in isolation but require integrated interventions across management, marketing, and population aspects.

Therefore, this study is designed to analyze these three critical dimensions of Bali cattle farming in Kutai Kartanegara namely business management, marketing patterns, and livestock population dynamics during the period 2021–2024. The findings are expected to generate evidence-based recommendations for enhancing efficiency, productivity, and sustainability within the Bali cattle sector. Furthermore, this study aims to contribute to the formulation of local policy interventions that empower rural farmers and strengthen the livestock-based economy of East Kalimantan.

Methods

This study was conducted in Tani Bhakti Village, Loa Janan District, Kutai Kartanegara Regency, East Kalimantan Province. The location was purposively selected because the village represented a smallholder Bali cattle farming centre and was relevant to the research objectives (Gerhana et al., 2025). Respondents in this study were Bali cattle farmers who were active members of the local livestock farmer group and directly managed their own herds. The respondent criteria included: (1) ownership of at least two Bali cattle, (2) direct involvement in daily livestock management, and (3) willingness to participate in structured interviews.

The sampling method applied was census sampling, in which all eligible farmers who met the criteria were included as respondents. At the time of the research, 20 farmers constituted the entire population of Bali cattle farmers in the village; therefore, the same number was taken as the sample. This approach ensured that the sample accurately reflected the research context, captured the full variation in management and marketing practices within the community, and minimized bias that might have occurred if only a subset of farmers had been selected (Cammarata et al., 2021; Nainggolan et al., 2024). In descriptive qualitative studies, the emphasis is placed on the depth and accuracy of information rather than the sample size. Using the total population of respondents is considered appropriate for obtaining comprehensive insights into local conditions.

The primary data collected in this study covered several aspects: (1) respondent identification, including demographic and socio-economic characteristics; (2) cattle population, specifically the number of Bali cattle by sex, age, and mortality; (3) livestock business management, including breed management, breeding systems, and feeding practices; and (4) marketing patterns, including sales methods, price determination mechanisms, and timing of sales. These data provided a solid foundation for analyzing both the operational and economic aspects of Bali cattle farming.

Secondary data were obtained from government reports, statistical publications, and relevant academic literature to provide contextual and theoretical support for the analysis (Cammarata et al., 2021). Data were analyzed using a descriptive approach, with the results presented in tabular and narrative form. The findings were then compared with previous studies to provide a broader context and validate the analysis (Sikone et al., 2024).

Result and Discussion

Respondent Characteristics

The study involved 20 respondents from Tani Bhakti Village, Loa Janan District, Kutai Kartanegara Regency, with a gender distribution showing that 16 respondents were male (80%) and four were female (20%). This gender imbalance is common in rural agricultural communities, particularly in cattle farming, where men traditionally dominate the farming and livestock management roles (Puspitawati et al., 2018). The age distribution revealed that most respondents (35%) were in the 31-40 age group, considered the most productive and active age for farming. The relatively low representation of younger farmers (20%) suggests that there may be a generational

gap, with younger individuals likely migrating to urban areas for better education and job opportunities. This trend highlights the challenge of attracting youth to agricultural activities.

Table 1. Respondent Characteristics

No	Respondent Characteristics	Number (Individuals)	Percentage (%)
	Gender		
1	Male	16	80
	Female	4	20
	Age Group (Years)		
	31-40	7	35
2	41-50	6	30
	51-60	3	15
	Other (less than 30 years)	4	20
	Education Level		
	Elementary School	3	15
3	Junior High School	5	25
	Senior High School	9	45
	Higher Education (College/University)	3	15
	Years of Farming Experience		
	1-10 years	5	25
4	11-20 years	8	40
	21-30 years	6	30
	More than 30 years	1	5
	Purpose of Cattle Farming		
5	Fattening	15	75
	Breeding	5	25

Source: Primary data analysis (2025)

Regarding educational background, the majority of respondents (45%) had completed senior high school (SMA), while 25% had attended junior high school (SMP). The respondents' education level reflects their capacity to engage with new technologies and farming techniques, often crucial for enhancing farm productivity. Higher educational attainment is associated with better access to agricultural information and a greater likelihood of adopting advanced practices. A significant proportion of respondents with lower educational levels (15% had completed only elementary school) may limit their ability to implement modern farming techniques effectively.

The farming experience of the respondents varied, with 40% having 11 to 20 years of experience in cattle farming, indicating a solid level of expertise within the community. This experience is crucial as it allows farmers to make informed decisions regarding livestock management, disease control, and market strategies (Widiarta, Qamara, et al., 2025). However, the diversity in experience also suggests a need for continuous knowledge transfer, especially for the younger generation and less experienced farmers, who could benefit from mentorship or training programs to improve their practices. The primary purpose of cattle farming among the respondents was fattening (75%), reflecting a commercial approach to livestock farming, with a smaller proportion (25%) focused on breeding. This focus on fattening indicates that the market demand for beef drives farming practices in the village (Widiarta et al., 2024).

The respondents' characteristics reflect a combination of experienced, middle-aged farmers, predominantly male, with varied educational levels. The data also suggest that while farmers are engaged in fattening cattle as a commercial venture, there is potential for expanding breeding activities to improve livestock productivity. The findings highlight the importance of gender inclusivity and the need to promote education and technology adoption in rural agricultural communities to enhance the sustainability and profitability of cattle farming in Tani Bhakti Village.

Bali Cattle Population

The Bali cattle population in Tani Bhakti Village consisted of 90 head, dominated by adult males and non-lactating females, while calves and heifers comprised a relatively small proportion. This structure reflects a typical pattern in smallholder Bali cattle farming, where production is primarily oriented toward beef rather than breeding or milk production. The limited number of

lactating females and young stock suggests weaknesses in reproductive performance, which could constrain the long-term growth and sustainability of the herd.

A particularly critical issue is the low proportion of calves in the herd. This indicates possible reproductive management problems, such as inadequate care of breeding females, suboptimal nutrition, or ineffective breeding practices. Previous studies have emphasized that persistently low birth rates in livestock increase dependence on external cattle purchases, reducing smallholder farming systems' economic sustainability (Panda et al., 2024). If these constraints are not addressed, herd regeneration will remain limited, threatening farmer income and local food security.

Table 2. Bali Cattle Population

No.	Cattle Category	Number (Head)
1	Lactating Females	8
2	Non-Lactating Females	32
3	Males	40
4	Calves	6
5	Heifers	4

Source: Primary data analysis (2025)

The presence of young animals, including heifers that have not yet calved, is only 4.4%, raising concerns about the long-term sustainability of the cattle population in the village. The availability of younger animals is essential to ensure future reproductive capacity. Effective breeding programs and improved livestock management practices could address this challenge by introducing healthy, breeding-ready heifers (Hariyono et al., 2025). The limited number of young cattle may indicate that current breeding programs are not functioning optimally or lack adequate technological support, ultimately hampers the herd's growth capacity.

These challenges call for immediate attention in the management of cattle farming in Tani Bhakti Village. Better breeding management practices, including artificial insemination technology and more intensive veterinary care, should be implemented to improve reproductive rates and increase calf production. Additionally, a better understanding of cattle health and nutrition is needed to increase livestock productivity regarding calf births and meat quality. By improving these aspects, the cattle farming industry in the village could become more economically and socially sustainable (Hariyono et al., 2025; Panda et al., 2024).

Reproductive Management

Reproductive management practices in Tani Bhakti Village primarily rely on traditional methods, where natural mating is the dominant breeding strategy. In this context, the male-to-female ratio predominantly follows the 1:1 or 1:2 model, with most farmers employing this system to optimize breeding efficiency. According to research by (Novita et al., 2024), this conventional approach is characteristic of smallholder farming systems where artificial insemination is not widely practised. While ensuring adequate access for female cattle to mates, the male-to-female ratio may not fully exploit reproductive potential, particularly when a 2:1 ratio is applied, potentially leading to underutilization of male livestock. In this regard, a more balanced approach to breeding management could improve reproductive outcomes by better aligning male availability with female needs.

Table 3. Reproductive Management

No.	Reproductive Management	Number (Head)	Percentage (%)
1	Male to Female Ratio	1:1	12
		1:2	5
		2:1	3
2	Age of Breeding (Months)	10-15	12
		16-20	6
		>20	2
3	Calving Interval (Days)	280	100
4	Handling at Birth	Not Applied	100
5	Weaning Age (Months)	3-4	40
		5-6	60

Source: Primary data analysis (2025)

The initiation of breeding in Bali cattle is generally observed between 10 and 15 months of age, with most farmers beginning reproduction at this stage. This practice aligns with general recommendations for cattle breeding, as it marks when cows typically reach sexual maturity (Prasetyo et al., 2020). However, initiating breeding at this age may present long-term health and productivity challenges, as cattle bred too early might not have reached full physical maturity, potentially compromising their reproductive lifespan. While later breeding at 16-20 months is practised by a smaller segment of farmers, delaying breeding requires careful consideration, balancing the benefits of mature breeding to maximise herd turnover and productivity.

One of the notable strengths of reproductive management in Tani Bhakti Village is the adherence to a calving interval of approximately 280 days, which is widely regarded as optimal for maintaining a steady supply of calves and ensuring the sustainability of the cattle population (Hariyono et al., 2025). However, a critical gap in the current system is the lack of specialised birth management practices, as no particular care is provided during calving. The absence of professional veterinary intervention and proper birthing protocols could result in higher neonatal mortality and longer recovery times for the mothers, ultimately affecting herd productivity and overall sustainability. More structured calving care, including veterinary oversight and postnatal support, could significantly reduce these risks, improving calf survival rates and maternal health.

The weaning practices in Tani Bhakti Village typically follow regional norms, with most calves being weaned at 5-6 months of age, which is considered the standard for this type of farming system (Warman et al., 2023). While this is generally accepted as an appropriate age for weaning, it is worth noting that 40% of farmers wean their calves at an earlier age, between 3 and 4 months. This practice may negatively impact calf growth and development, as early weaning limits the time calves spend on maternal milk, which is crucial for their immune system development and overall health. Thus, educating farmers on the physiological benefits of later weaning, which aligns with best practices, could improve calf health and long-term productivity, contributing to the overall economic viability of cattle farming in the region.

Feeding Management

Feeding management in Tani Bhakti Village follows traditional methods, with all farmers primarily utilising locally sourced grass as the main feed for their cattle. This reliance on local forage is common in rural agricultural systems where the availability of resources dictates feeding practices. As noted in recent studies, grass-based feeding systems provide a cost-effective and sustainable source of nutrition, ensuring that cattle receive the essential nutrients required for growth and development (Hufana-Duran & Duran, 2020). However, while grass serves as an adequate base for cattle diets, it is important to recognise the limitations of such feeding systems, particularly in providing a balanced nutrient profile necessary for optimising the health and productivity of the cattle. The challenge in these systems is that they often lack the diversity or supplementation seen in more intensive commercial systems, which could lead to nutritional deficiencies that affect long-term cattle health and productivity.

Table 3. Feeding Management

No.	Feeding Management	Number (Head)	Percentage (%)
1	Primary Feed Type - Grass	20	100
2	Feed Source - Locally Sourced from Village	20	100
3	Frequency of Feeding - Twice per Day	20	100
4	Amount Fed to Calves (kg) 20-40	5	25
	Amount Fed to Calves (kg) 41-60	7	35
	Amount Fed to Calves (kg) 61-80	8	40
5	Amount Fed to Adult Cattle (kg) 20-40	7	35
	Amount Fed to Adult Cattle (kg) 41-60	9	45
	Amount Fed to Adult Cattle (kg) 61-80	4	20

Source: Primary data analysis (2025)

In Tani Bhakti Village, the feeding frequency is consistent across all farmers, with cattle being fed twice daily. This regular feeding schedule is essential for maintaining the cattle's nutritional needs, ensuring they receive sufficient energy throughout the day to support maintenance and growth (Syam et al., 2019). Regular feeding also helps farmers monitor the intake of each animal, allowing

for timely adjustments to the quantity of feed based on individual needs. However, while the twice-daily feeding practice is beneficial in ensuring steady nutrient intake, there remains room for improvement in feed quality. The introduction of supplementary feed, such as mineral licks or protein sources, could enhance the nutritional value of the grass and improve overall cattle health and productivity.

The amount of feed provided to calves varies from 20 to 80 kg daily, depending on the age and growth stage of the calf. Specifically, five farmers provide 20-40 kg of feed to calves, seven farmers offer 41-60 kg, and eight feed their calves 61-80 kg daily. This variation in feeding quantities reflects farmers' understanding of the increasing nutritional needs of calves as they grow. Early-stage nutrition plays a crucial role in the future productivity of the animals, as proper nutrition during the first few months of life can significantly impact growth rates, health, and reproductive success. The differences in feeding amounts also highlight the potential for improving consistency across farms. Standardising feeding practices, or introducing nutritional guidelines, could further enhance calf development and reduce variability in growth outcomes, leading to a more uniform and productive herd.

Feeding practices for adult cattle vary depending on their size, with cattle being fed between 20 and 80 kg of grass daily. Seven farmers provide 20-40 kg, nine feed 41-60 kg, and four offer 61-80 kg daily. This adjustment in feed quantity based on the size and condition of the cattle ensures that each animal receives adequate nutrition for maintenance and growth. Larger cattle, especially those used for breeding or milk production, require more substantial feed quantities to maintain body condition and support reproductive health. The flexibility in the amount of feed provided allows for individual care tailored to the needs of each animal. However, introducing a more structured feeding protocol that considers factors such as body condition score and milk production status could help optimise feeding efficiency and improve herd performance.

The feeding management practices in Tani Bhakti Village provide a solid foundation for maintaining cattle health and productivity, with locally sourced grass as the primary feed. While these traditional practices have served the community well, there is considerable potential for improvement. Integrating supplementary feeds, introducing more standardised feeding protocols, and improving the quality of grass-based diets could significantly enhance cattle health, growth, and reproductive performance. Furthermore, educating farmers on the importance of balanced nutrition and developing guidelines for feeding management will ensure the long-term sustainability and profitability of cattle farming in the village.

Post-Harvest Management

The post-harvest phase of Bali cattle in Tani Bhakti Village, located in Loa Janan District, Kutai Kartanegara Regency, East Kalimantan Province, plays a pivotal role in determining the economic returns for farmers and the overall quality of livestock products. This phase involves several key activities, including slaughtering, meat processing, and managing by-products such as hides and bones. Proper management of these processes can significantly enhance the value of the products derived from Bali cattle. However, research has shown that the lack of advanced meat processing techniques and inadequate storage facilities in many rural areas, such as Tani Bhakti, can lead to considerable post-harvest losses (Najeriyah et al., 2025). While the local market provides opportunities for sale, there is a need for more structured post-harvest management systems to improve the efficiency of meat processing and extend the shelf life of beef products. The introduction of modern slaughtering practices and the adoption of quality control measures could not only reduce wastage but also enhance the overall competitiveness of Bali cattle products in both domestic and international markets.

In addition to meat processing, the hygienic conditions of the slaughtering process are critical factors influencing the final product's quality. The absence of strict hygiene practices in many traditional slaughterhouses in the village poses a risk of contamination, which can lead to health hazards and the degradation of meat quality. Research by (B. Santoso & Prasetiyono, 2020) emphasises the importance of establishing standardised sanitation protocols in slaughterhouses to minimise microbial contamination and ensure food safety. For instance, improper meat handling during slaughter and insufficient sanitation practices can result in spoilage, diminishing the meat's market value and compromising the product's consumer safety. Given the vital role of sanitation in

maintaining product integrity, Tani Bhakti farmers need to adopt cleaner and more controlled slaughtering methods to boost the quality and competitiveness of Bali cattle meat in the marketplace.

Furthermore, waste management, particularly the disposal of animal by-products such as bones, skin, and offal, remains a significant concern in the post-harvest management of Bali cattle. Poor management of these by-products can lead to environmental pollution while missing out on valuable opportunities to generate additional revenue. (Prasetyo et al., 2020) state that by-products like bones and hides can be processed into valuable goods such as bone meal or leather products, contributing to farmers' diversification of income sources. Efficient waste management techniques, including recycling organic waste into compost or biogas, could reduce environmental impact and provide economic benefits by converting waste into valuable resources (Widiarta, Qamara, et al., 2025). Therefore, improving by-product management in Tani Bhakti Village is crucial for enhancing the economic sustainability of Bali cattle farming, ensuring that farmers capitalize on all aspects of cattle production.

Ultimately, improving post-harvest practices in Bali cattle farming in Tani Bhakti Village will require infrastructure and knowledge transfer investment. Training farmers on proper meat processing, hygiene standards, and by-product utilisation is essential to elevate the quality and profitability of Bali cattle products. Integrating modern technologies and providing eni Bhakti Village is predominantly organized through traditional mechanisms that are heavily dependent upon intermediaries. This structural dependence exerts a significant influence on both price formation and distribution efficiency. The principal marketing channel involves local intermediaries who acquire cattle directly from farmers and subsequently resell them to larger markets or final consumers. This arrangement frequently places farmers at a disadvantage, as interducation on best practices in post-harvest management are fundamental steps toward improving the overall competitiveness of Bali cattle farming, both locally and globally. With appropriate investments in these areas, Tani Bhakti Village could enhance its standing in the broader livestock market, benefiting farmers and the local economy.

Marketing Patterns

The marketing of Bali cattle in Tani Bhakti Village was predominantly organised through traditional mechanisms heavily dependent on intermediaries. This structural reliance strongly influenced both price formation and distribution efficiency. The principal marketing channel involved local intermediaries who purchased cattle directly from farmers and resold them to larger markets or final consumers. This arrangement frequently placed farmers at a disadvantage, as intermediaries applied resale mark-ups that reduced the share of profits received by producers.

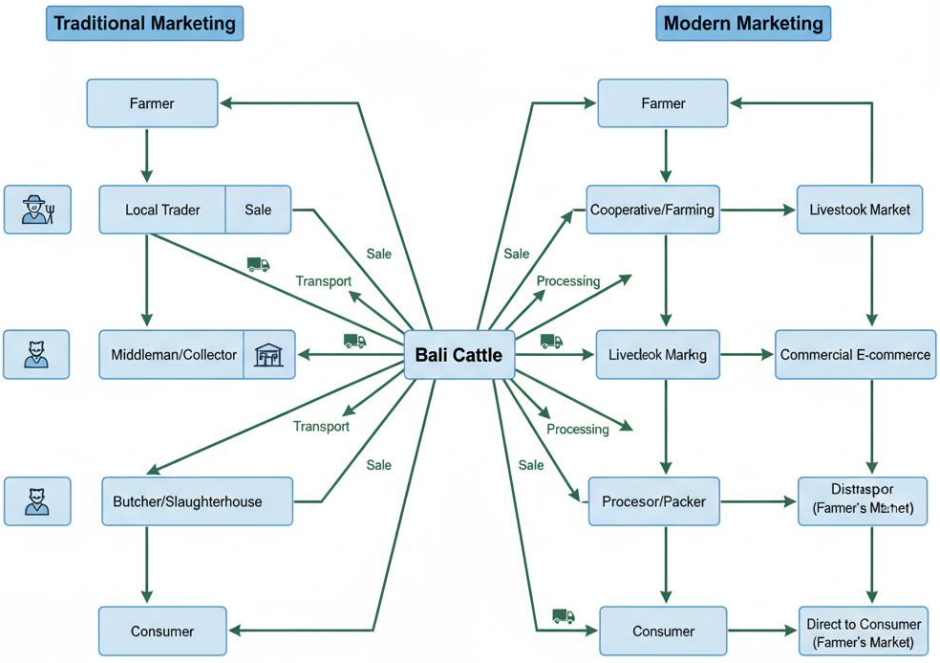

Figure 1. Flowchart Bali cattle marketing patterns in Tani Bhakti Village
Source : Primary data analysis (2025)

Survey results in this study confirmed that 12 out of 20 respondents (60%) lacked direct access to larger markets and relied exclusively on intermediary-based channels. Bottlenecks marketing in smallholder cattle systems in other regions. The absence of direct marketing channels significantly reduced farmers' bargaining power and limited their ability to secure higher profit margins. Consequently, expanding farmers' access to consumer markets through cooperatives or adopting digital platforms has become urgent to achieve more equitable pricing and improve income retention.

Market fluctuations represent another critical dimension that substantially shapes Bali cattle marketing outcomes. Prices are subject to seasonal variations in demand and supply, with marked increases during festive and religious periods, followed by considerable declines in off-season months. Such price volatility, as observed in Tani Bhakti Village, occurred when cattle prices rose sharply during religious festivals such as Eid al-Adha but dropped significantly during off-season months. This left farmers with unstable income flows and heightened economic risks, particularly for those who relied on cattle sales as their primary livelihood. (Widiarta, et al., 2025) emphasize that unstable pricing mechanisms exacerbate vulnerability within rural farming households, thereby intensifying their exposure to market uncertainty. To address these conditions, it is imperative to implement strategies that promote price stability throughout the year. One prospective approach is the development of contract farming or pre-sale agreements, which can provide both predictability in pricing and assurance of demand across production cycles.

Another determinant influencing Bali cattle marketing is consumer perception of product quality. Bali cattle are widely recognized for their superior beef quality, characterized by distinctive flavour and texture that are highly valued in the domestic market. Farmers in Tani Bhakti Village have not been able to fully capitalize on the superior meat quality of Bali cattle. They lack systematic branding initiatives such as product differentiation, certification, or labelling and continue to rely on limited marketing strategies confined to local intermediaries without broader promotional efforts or digital market access.. As highlighted by (Tuell et al., 2022), branding and the application of systematic marketing efforts are crucial for positioning Bali cattle as a premium commodity in both local and international markets. By emphasizing the unique attributes of Bali beef and promoting it as a specialty product, farmers could stimulate consumer demand and achieve higher price levels. Complementary interventions, including the introduction of standardized packaging and certification systems such as halal certification or organic labeling could further reinforce the competitive position of Bali cattle products in diverse market segments.

The digitalization of marketing practices offers a transformative opportunity that simultaneously addresses multiple challenges faced by farmers in Tani Bhakti Village. By enabling direct interaction with consumers and wholesalers through e-commerce platforms and mobile applications, farmers can reduce their reliance on intermediaries, thereby minimizing transaction costs and ensuring a fairer distribution of profits. This reduction in structural inefficiencies is reinforced by enhanced access to real-time market information, which promotes pricing transparency and allows farmers to make informed decisions that align supply with demand. These factors do not operate in isolation; instead, they form an integrated system in which technology-driven market access, information availability, and operational efficiency mutually reinforce one another. The result is a coherent framework where streamlined transactional processes, expanded consumer networks, and improved profit margins converge to elevate farmers' competitiveness. Adopting digital marketing is not merely an incremental improvement in one aspect of marketing but a strategic pathway that interlinks multiple dimensions, economic, informational, and operational, thus empowering farmers while securing sustainable, long-term economic outcomes (Widiarta, et al., 2025).

Conclusions

This study demonstrates that the Bali cattle sector in rural East Kalimantan, particularly in Tani Bhakti Village, faces several challenges that hinder its efficiency and sustainability. Despite an increase in the Bali cattle population, the reliance on traditional management practices, intermediary-based marketing patterns, and suboptimal livestock population management can impede the sector's growth. In terms of business management, adopting modern technologies in feed management, disease control, and more efficient husbandry systems is essential to improve productivity. Additionally, a more structured marketing system utilizing digital technologies can open broader

market access for farmers and reduce dependency on intermediaries, thereby increasing farmers' profits. Livestock population management must also be improved through better feed quality, targeted breeding programs, and intensive health care practices. Implementing these recommendations is expected to enhance the competitiveness of Bali cattle farming, strengthen regional food security, and make the sector more economically and socially sustainable in the future. Therefore, the government and relevant stakeholders must support the development of this sector through policies that promote technology adoption, farmer education, and improved infrastructure to enhance production and marketing efficiency.

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