STRATEGIC PRIORITIES FOR CATTLE–OIL PALM INTEGRATION DEVELOPMENT IN BUNGO REGENCY, INDONESIA

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ABSTRACT

This study examines the existing practices, strategic environment, and development priorities of cattle–oil palm integration (SISKA) in Bungo Regency, Jambi Province, Indonesia. A field survey involved 100 cattle farmers selected purposively and by balanced quotas in Pelepat Ilir and Pelepat Districts (50 respondents per district). Observations, interviews, questionnaires, secondary statistics, and expert assessments were analyzed using descriptive statistics, internal and external factor evaluation (IFAS–EFAS), SWOT, and the Analytical Hierarchy Process (AHP). Semi-intensive management dominated (55%); 88% of respondents used oil palm plantations as feed sources, but only 21% processed feed materials. Institutional and financial capacities remained constrained. SWOT results placed SISKA development in the strengths–opportunities quadrant, with coordinates (0.912, 0.866). AHP identified multiparty partnerships (0.1824), group-based SISKA production centers (0.1568), and farmer capacity building and technology adoption (0.1252) as the three highest priorities. The findings suggest that effective expansion requires connecting the existing resource base to coordinated partnerships, collective institutions, appropriate technology, and operational safeguards rather than relying on livestock-population growth alone.

Keywords: beef cattle; cattle–oil palm integration; development strategy; SWOT; Analytical Hierarchy Process

I. INTRODUCTION

Securing an adequate and affordable supply of animal protein is a central concern of regional agricultural development in Indonesia. Beyond increasing production, food-system policy emphasizes resource efficiency, local institutional capacity, and sustainable economic opportunities. The national food policy framework, including Law No. 18 of 2012 on Food, Law No. 59 of 2024 on the 2025–2045 National Long-Term Development Plan, and Presidential Regulation No. 12 of 2025 on the 2025–2029 National Medium-Term Development Plan, places food self-reliance within the broader agenda of regional development (Government of Indonesia, 2012, 2024, 2025). For cattle-producing regions, this agenda calls for development strategies that account for local farming systems instead of treating herd expansion as a stand-alone intervention.

Jambi Province illustrates the magnitude of the challenge. The provincial food balance reported local beef production of 4,380.42 tons against consumption needs of 12,662.55 tons in 2024, representing a deficit of 8,282.13 tons (Jambi Provincial Development Planning Agency, 2025). This deficit makes the productivity and resilience of local cattle farming particularly relevant. The opportunities for improvement are geographically differentiated, however, since cattle populations,

feeding resources, institutional support, and market access vary considerably across the province. Strategies therefore need to respond to both the biophysical capacity of particular districts and the practical constraints of smallholder farmers.

Bungo Regency is an important setting for this discussion because cattle husbandry coexists with extensive oil palm plantations. Oil palm fields can supply forage from understorey vegetation and usable biomass from plantation operations; cattle manure, in turn, can provide organic nutrients for plantation management. Integrated crop–ruminant systems have long been recognized as a means of improving resource utilization and linking livestock production with plantation activities (Devendra, 2011; Diwyanto et al., 2004). Yet integration is not automatically efficient. Practical outcomes depend on access to plantation land, appropriate grazing arrangements, feed-processing skills, animal health measures, and agreements among farmers and plantation stakeholders.

The Cattle–Oil Palm Integration System, commonly referred to by its Indonesian acronym SISKA, can be understood as a coordinated production arrangement rather than merely placing cattle within an oil palm estate. Its value arises from the reciprocal use of resources, joint management of potential risks, and creation of business opportunities. Previous work in Indonesia has examined cattle–oil palm integration from the perspectives of smallholder management practices, development strategies, institutional arrangements, and production potential (Karina et al., 2020; Nur et al., 2021; Silalahi et al., 2019; Wika et al., 2019). Those studies offer useful empirical comparisons but cannot substitute for a local assessment of Bungo Regency, where smallholder conditions and plantation access may shape the feasibility of different interventions.

The strategic difficulty is that the physical resource base may be more advanced than the complementary services needed to use it productively. Farmers may graze cattle in plantations without having sufficient feed processing, reliable business records, credit, collective marketing, or clear procedures for managing herbicide application and plantation replanting. From a regional management perspective, successful SISKA development requires prioritizing competing policy and investment alternatives. A descriptive survey alone identifies conditions but does not distinguish which intervention should be undertaken first. SWOT analysis helps formulate strategic alternatives, while the Analytical Hierarchy Process (AHP) can establish their relative priorities based on explicit criteria (Rangkuti, 2016; Saaty, 1980; Direktorat Jenderal Peternakan dan Kesehatan Hewan, 2020; Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Kabupaten Bungo, 2024).

Existing Indonesian studies and policy documents address cattle–oil palm integration from the perspectives of integrated management, technical potential, agribusiness institutions, risk, and sustainability (Saputra et al., 2016; Kapa et al., 2018; Karina et al., 2020; Nur et al., 2021; Hasan et al., 2023; Setiyono et al., 2024; Biyatmoko et al., 2025; Harsya et al., 2025; Nugraha & Permatasari, 2025). Regional livestock planning and development policy also emphasize area-specific opportunities and coordination (Indrayani et al., 2022; Trisman et al., 2023; Pemerintah Provinsi Jambi, 2024, 2025). This body of work provides context for the current article, which combines survey findings with sequential SWOT and AHP decisions.

The contribution of this article is to integrate three layers of evidence into a decision-oriented regional framework: empirical farming practices, the internal–external strategic environment, and expert-derived priority weights. Combining IFAS–EFAS, SWOT, and AHP enables the analysis to move from general claims about

integration potential to a ranked set of implementation options. This approach is especially relevant for fragmented smallholder production systems that need coordination among government offices, farmers' groups, plantation operators, extension services, research institutions, and financing bodies.

Accordingly, this study addresses three questions: (1) What are the existing forms of SISKA implementation among sampled cattle farmers in Pelepat Ilir and Pelepat Districts? (2) What strengths, weaknesses, opportunities, and threats characterize further SISKA development in Bungo Regency? and (3) Which development strategies should receive the highest relative priority? The study aims to produce an evidence-based basis for regional planning and collective action while recognizing the limitations of non-probability sampling and judgment-based prioritization.

II. RESEARCH METHODS

Research area and study design

The research was conducted in Bungo Regency, Jambi Province, in 2026, focusing on Pelepat Ilir and Pelepat Districts. The two districts were selected purposively because of their cattle farming activities and oil palm plantation resources. A mixed strategic-assessment design was used, combining descriptive quantitative field results with qualitative identification of strategic factors and multi-criteria expert judgments. The unit of observation for farming practices was the individual cattle farmer; strategic assessments addressed the broader development environment of the SISKA system.

According to the resource figures reproduced in the thesis, Pelepat Ilir contained 18,735 hectares of oil palm and 5,049 cattle, while Pelepat contained 18,418 hectares of oil palm and 1,454 cattle. Together, the two districts accounted for 37,153 hectares of oil palm and 6,503 cattle in the respective source years. These regional statistics serve as contextual information rather than as a complete sampling frame of farmers applying SISKA.

Table 1
Research Location and Survey Allocation

Research district	Oil palm area, 2024 (ha)	Cattle population, 2025 (head)	Farmer respondents
Pelepat Ilir	18,735	5,049	50
Pelepat	18,418	1,454	50
Two-district total	37,153	6,503	100

Source: Bungo regional data reproduced in the thesis; primary survey, 2026. Source years differ by indicator.

Sampling and data collection

The number of SISKA farmers in the two districts was not available as a verified person-level sampling frame. Therefore, probability sampling was not feasible. The study used purposive selection to identify active cattle farmers who owned, managed, or accessed oil palm plantations and displayed a real operational link between cattle rearing and plantation resources. This link could consist of using plantation vegetation or by-products for animal feeding, or returning livestock by-products to plantation land. An initial sample-size calculation for estimating a proportion from an unknown population yielded a minimum of 96 observations, following Lemeshow et al. (1990). The target was rounded to 100 and assigned evenly by quota: 50 farmers in each district.

Local group records and information from extension officers, village officials, and technical agencies were used to identify eligible respondents. Farmers were recruited sequentially until the allocated quota for each research district was reached. Because quota allocation was deliberately equal and the underlying number of SISKA farmers was unknown, the percentages in this article describe the sampled farmers only; they should not be interpreted as statistically representative prevalence estimates for all cattle farmers in Bungo Regency.

Primary information was gathered through direct observation of cattle management, plantation use, animal housing, feed resources, waste utilization, and farming infrastructure; structured interviews and questionnaires with farmers; and assessments by knowledgeable stakeholders. Key informants and expert respondents were purposively identified from relevant technical agencies, extension services, research or academic institutions, farmers' representatives, and other SISKA stakeholders. Secondary sources included livestock and plantation statistics, regional development plans, and sectoral policy and research literature. The thesis does not specify an exact number of AHP experts in the sections reviewed, so no expert-panel size is asserted here.

Analytical stages

The analysis proceeded in three stages. First, descriptive percentages were calculated for production practices, access to inputs, farmer organizations, recording and finance, marketing, and perceived risks. SISKA practices were classified as intensive, semi-intensive, or extensive according to the operational characteristics specified in the field study. The analysis reports the observed characteristics and does not test causal relationships between particular farming practices and economic outcomes.

Second, the Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) evaluated five strengths, five weaknesses, five opportunities, and five threats. Strategic factors were identified from field observations, farmer responses, and stakeholder assessments. Each factor received a relative weight and rating; the weighted scores were aggregated into the four SWOT dimensions. Strategic coordinates were derived from the differences between strengths and weaknesses ($X = S - W$) and between opportunities and threats ($Y = O - T$). The resulting quadrant informed the broad strategic direction, while the SWOT matrix translated relationships among strategic factors into eight alternatives grouped as SO, WO, ST, and WT.

Third, AHP prioritized the eight alternatives against four implementation criteria: technical feasibility (K1), economic feasibility (K2), institutional feasibility (K3), and sustainability (K4). Expert respondents conducted pairwise comparisons using the conventional 1–9 relative-importance scale. The thesis describes aggregation of individual judgments through the geometric mean and evaluation of consistency through the Consistency Ratio (CR), with $CR < 0.10$ considered acceptable (Aczél & Saaty, 1983; Saaty, 1980). Global alternative priorities were calculated by combining criterion weights and criterion-specific local priorities. The weights express relative preferences among proposed strategies; they are not estimates of predicted percentage gains in cattle production or farmer income.

III. RESULTS AND DISCUSSION

Existing SISKA practices

The field findings indicate that integrated cattle–oil palm farming was already an established practice among the selected respondents, but its intensity differed. Of 100 respondents, 55 used a semi-intensive pattern, 28 followed an intensive pattern, and 17 were categorized as extensive. In the semi-intensive pattern, cattle management combined controlled housing or feeding with some use of plantation resources. The large share of this middle category suggests that further development could focus on strengthening existing arrangements instead of introducing an entirely new production model.

Oil palm resources were widely used, particularly as locations for forage collection or grazing. Eighty-eight respondents reported using plantation areas as a source of animal feed, while 72 grazed cattle directly in plantations. Another 74 provided feed daily, 68 housed cattle at night, and 96 ensured daily access to drinking water. These basic practices point to an operational foundation for SISKA, but the level of resource-processing technology remained much lower. Only 36 respondents used oil palm biomass or by-products, 21 processed feed or biomass before feeding, and 24 had access to feed-processing equipment.

The difference between resource access and processing capacity is central to interpreting the system. Using plantation vegetation can reduce some feeding constraints, but unprocessed materials do not necessarily provide consistent nutritional quality or year-round availability. Skill development, collective machinery, and locally appropriate processing methods may be more feasible than asking individual smallholders to finance equipment independently. Further research would be necessary to evaluate actual feeding costs, animal weight gain, and the cost-effectiveness of different processing technologies; these outcomes were not directly quantified in the thesis.

Table 2
Main Production and Resource-Use Practices among 100 Farmers

Indicator	Respondents (n)	Percentage (%)
Semi-intensive SISKA practice	55	55
Intensive SISKA practice	28	28
Extensive SISKA practice	17	17
Plantation used as a feed source	88	88
Cattle grazed in oil palm plantation	72	72
Oil palm biomass/by-products used	36	36
Feed/biomass processed before feeding	21	21
Access to feed-processing equipment	24	24
Livestock manure utilized	78	78
Manure used on oil palm plots	71	71
Cattle urine utilized	22	22

Source: Primary farmer survey (n = 100), 2026; indicators may overlap and are not mutually exclusive.

The reciprocal utilization of livestock by-products also showed incomplete integration. Seventy-eight respondents reported making use of manure and 71 applied

livestock-derived fertilizer to oil palm fields, compared with only 22 who made use of cattle urine. The pattern suggests that the more familiar manure pathway was being adopted more readily than more specialized waste-processing arrangements. Moreover, 69 respondents perceived plantation grazing as helpful in suppressing weeds, while 82 perceived economic benefits from SISKA. These percentages report respondents' assessments; they are not measured changes in plantation production, farm profits, or environmental indicators.

The uneven adoption of technologies is consistent with studies discussing the opportunities and challenges of cattle–oil palm integrated management in other Indonesian locations (Karina et al., 2020; Nur et al., 2021; Wika et al., 2019). Bungo's practical challenge is therefore not simply to demonstrate that plantation resources can be used but to develop a dependable system of feed preparation, manure management, animal health, and agreed access arrangements that supports farmers over multiple planting and cattle production cycles (Edwina et al., 2020; Oktavia et al., 2025).

Institutional capacity, business management, and risks

Institutional participation provides an initial channel for intervention. Seventy-six respondents belonged to farmer or livestock groups and 68 described their groups as active; 66 had received extension assistance and 61 reported receiving government support. Yet fewer respondents experienced direct business services through the groups. Only 48 reported regular meetings, 39 said groups helped obtain production inputs, 34 received help with marketing, 28 participated in collective business activities, and 22 reported cooperation with external organizations.

These findings indicate a distinction between group existence and group performance. Membership and participation can facilitate policy outreach, but economic outcomes require functions such as joint procurement, shared asset management, transparent records, and negotiated agreements. Research on cattle–oil palm integration has similarly drawn attention to the importance of collective institutions for productive cooperation, although the specific institutional arrangements may vary by location (Edwina et al., 2020). For Bungo, the gap between relatively common membership and infrequent collective enterprise presents a management problem that should be addressed directly.

Business recording also remained limited. Only 41 respondents recorded livestock ownership or changes, 29 recorded sales, 24 recorded operating costs, and 31 reported having a business plan. Without systematic records, it is difficult for farmers and supporting agencies to assess expenditure, financial returns, input requirements, and investment readiness. This weakness is closely linked with financing conditions: 67 respondents experienced capital constraints, while only 33 reported access to financing. A development scheme based on subsidized equipment or temporary projects would therefore need mechanisms for group maintenance, repayment where applicable, and longer-term operating finance.

Marketing conditions were comparatively favorable. Seventy-four respondents reported that buyers were easy to find, and 61 considered cattle sale prices profitable. However, 55 experienced the effects of cattle price fluctuations, suggesting that market availability does not eliminate income volatility. Collective information on prices and agreed selling arrangements could support bargaining capacity, particularly where individual cattle holdings are small and sales are irregular.

Operational risks were also prominent. Sixty-eight respondents cited rising input costs, 44 experienced seasonal feed shortages, 39 identified herbicide or pesticide-related risks, 28 reported restricted plantation access during replanting, and 18 reported cattle–plantation conflicts. Only 42 considered SISKA programs sustainable and 47 rated coordination among stakeholders positively. These results reinforce the need for formal operational procedures for grazing, crop spraying, biosecurity, feed storage, land access, and dispute handling; they also explain why partnership and governance strategies emerge as priorities rather than peripheral suggestions.

Table 3
Selected Institutional and Business Conditions among Surveyed Farmers

Condition	Respondents (%)
Membership in farmer/livestock group	76
Active farmer/livestock group	68
Group engages in joint business activities	28
Group has external cooperation	22
Extension officer assistance received	66
Records operating costs	24
Access to financing	33
Experiences limited working capital	67
Easily finds cattle buyers	74
Affected by cattle price fluctuations	55
Experiences seasonal feed shortages	44
Perceives stakeholder coordination as good	47

Source: Primary farmer survey (n = 100), 2026. Multiple-response indicators describe different aspects of the same respondents.

Internal and external strategic assessments

The internal assessment identified five principal strengths: access to oil palm plantation resources, experience in cattle farming, use of plantation resources for feeding, recycling of livestock waste, and the presence of farmer organizations. The most important weaknesses were limited technical knowledge, low feed- and waste-processing technology adoption, weak business recordkeeping, limited internal capital, and underdeveloped group-based enterprise. The assessment thus portrays a sector with a relatively favorable natural-resource base but insufficient complementary managerial and technological capabilities.

The weighted IFAS subtotal for strengths was 1.706, compared with 0.794 for weaknesses, and the reported total IFAS score was 2.499. In the individual factors, access to plantation resources and utilization of the resource base were among the strongest positive elements. Capital constraints were the highest-scoring weakness (0.217). These estimates must be read as outputs of the study's factor-weighting procedure: they are judgments of relative strategic importance, not independent econometric coefficients.

The external assessment identified opportunities in government policy and extension support, financing, potential partnerships with plantation enterprises and palm oil mills, market demand, and research-based technology transfer. Its threats comprised animal diseases, climate and seasonal feed instability, operational risks within plantations, price volatility, and discontinuity in supporting programs. The opportunity subtotal was 1.726, above the threat subtotal of 0.859, with a total EFAS

score of 2.585. Government support and demand for beef were relatively important opportunities, while plantation-related operational risks required particular attention.

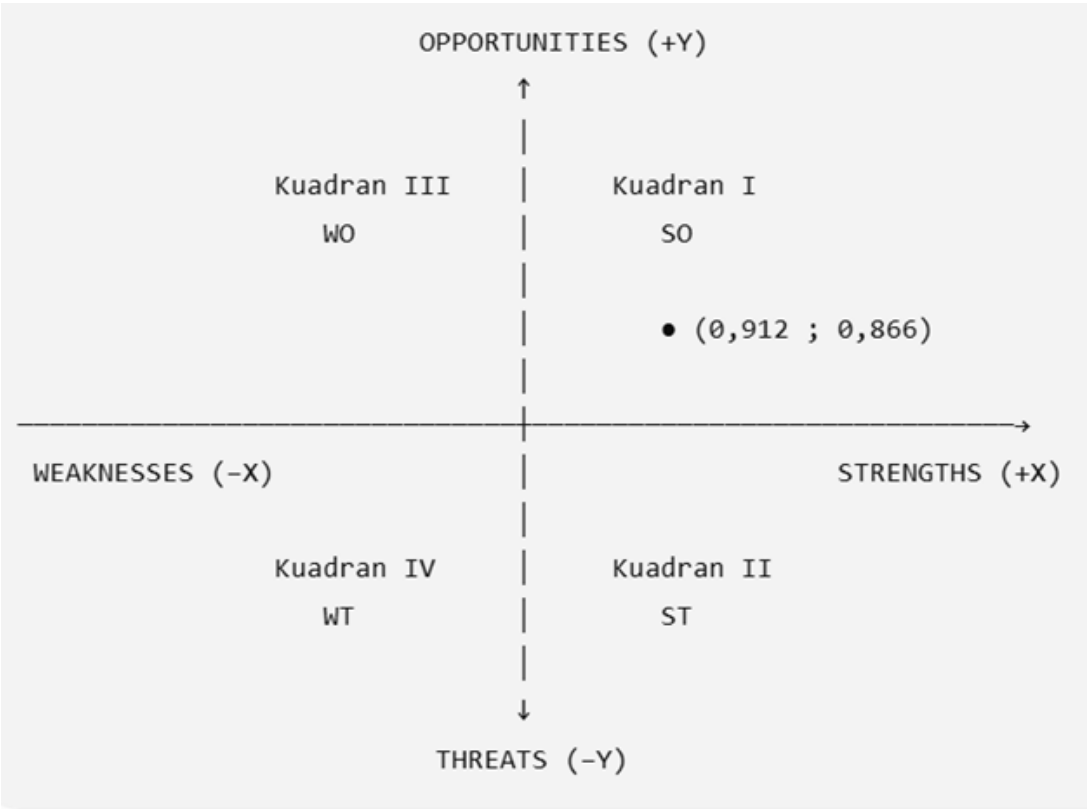
Table 4
Summary of IFAS–EFAS and Strategic Position

Strategic dimension	Weighted score
Strengths (S)	1.706
Weaknesses (W)	0.794
Internal coordinate: S − W	+0.912
Opportunities (O)	1.726
Threats (T)	0.859
External coordinate: O − T	+0.866
Total IFAS	2.499
Total EFAS	2.585

Source: IFAS and EFAS matrices in the thesis, 2026. Values are reproduced as reported; minor differences may reflect rounding.

The combined strategic coordinates, X = +0.912 and Y = +0.866, place SISKA development in SWOT Quadrant I, the strengths–opportunities or SO position. Under the study's decision framework, an SO position supports progressive expansion built on available strengths and external opportunities. It does not, however, imply that all production units are already efficient or that weaknesses and threats can be ignored. Rather, the quadrant indicates that a growth-oriented strategy can be considered alongside targeted remedies for the institutional, financial, technological, and operational weaknesses identified in the descriptive results. The resulting coordinate diagram is presented in Figure 1.

Figure 1
SWOT Strategic Position of Cattle–Oil Palm Integration in Bungo Regency



Source: IFAS–EFAS and SWOT analysis of thesis research data, 2026.

The SWOT matrix produced two SO strategies, two WO strategies, two ST strategies, and two WT strategies. The SO category consisted of establishing group-based SISKA production centers (A1) and building multiparty partnerships (A2). WO strategies focused on farmer training and technology adoption (A3) and collective financing and investment (A4). ST strategies emphasized risk management (A5) and collective marketing (A6). WT strategies involved strengthening group economic institutions and cross-sector coordination (A7) and developing technical standard operating procedures (A8). These eight alternatives served as the options evaluated by AHP.

AHP criteria and development strategy priorities

The AHP evaluation ranked technical feasibility as the most influential criterion (0.3187), followed by economic feasibility (0.2712), institutional feasibility (0.2560), and sustainability (0.1541). Together these weights sum to 1.0000. Their distribution indicates that expert judgment emphasized whether proposed interventions can be implemented under actual farmer conditions, whether their economic requirements are feasible, and whether the necessary organizations can support them. Sustainability remained relevant but received a smaller relative weight in the reported pairwise comparisons.

This weighting matches the operational gaps observed in the survey: low feed processing (21%), limited financing access (33%), and sparse collective enterprise (28%) make technical, economic, and institutional feasibility immediate concerns. Sustainability retains substantive importance despite its lower relative weight. Because AHP criteria express expert preferences rather than universal priorities, sensitivity testing and additional stakeholder perspectives would be valuable.

Table 5
AHP Implementation Criteria and Aggregated Consistency Ratios

Criterion	Priority weight	Consistency ratio (CR)
K1 – Technical feasibility	0.3187	0.00134*
K2 – Economic feasibility	0.2712	0.00211*
K3 – Institutional feasibility	0.2560	0.00108*
K4 – Sustainability	0.1541	0.00209*
Criteria matrix	1.0000 (total)	0.00083

*Source: AHP results in the thesis, 2026. *CR for the alternative-comparison matrix under the indicated criterion; all are < 0.10.*

All reported AHP consistency ratios were below the study's stated acceptance threshold of 0.10. The matrix comparing the four main criteria yielded CR = 0.00083, and the matrices evaluating alternatives under each criterion ranged from 0.00108 to 0.00211. These values indicate high internal consistency of the reported comparison matrices, although they do not establish external validity or guarantee that expert preferences will match those of all stakeholders. In particular, the exact number and composition of respondents assessing AHP were not specified in the material available for this article draft and should be documented before submission.

At the global level, the highest-ranked alternative was multiparty SISKA partnerships (A2) with a weight of 0.1824. Group-based SISKA production centers (A1) followed at 0.1568, while strengthening farmer skills and applying technology (A3)

ranked third at 0.1252. The next priorities were risk management (A5, 0.1202), economic institutions and cross-sector coordination (A7, 0.1191), group financing and investment (A4, 0.1089), technical standard operating procedures (A8, 0.1018), and collective marketing (A6, 0.0856).

Table 6
Global Priority Ranking of the Eight SISKA Development Strategies

Rank	Code	Strategic alternative	Global weight
1	A2	Multiparty SISKA partnerships	0.1824
2	A1	Group-based SISKA production centers	0.1568
3	A3	Farmer competency and technology adoption	0.1252
4	A5	SISKA risk management	0.1202
5	A7	Economic group governance and coordination	0.1191
6	A4	Collective financing and investment	0.1089
7	A8	Technical SOP for cattle–oil palm integration	0.1018
8	A6	Collective marketing and bargaining	0.0856

Source: AHP global priority matrix in the thesis, 2026. Weights represent relative priority and sum to 1.0000.

The prominence of partnerships reflects the interdependence of SISKA activities. Farmers control important production decisions but may not independently control access to estate roads and grazing areas, palm oil processing by-products, veterinary services, affordable equipment, applied research, or investment finance. Multiparty agreements can create clearer roles for farmers' groups, plantation companies, local technical agencies, universities, extension agents, and financing institutions. The practical content of these agreements could include access protocols, shared feed-processing facilities, animal health support, training, and joint performance monitoring. Their effectiveness would nevertheless depend on implementation quality and equitable arrangements between farmers and larger institutional partners.

The second priority, group-based SISKA centers, complements the first. A production-center model would aggregate extension, access to processing technology, animal health programs, and collective commercial activities within identifiable areas. In Pelepat Ilir and Pelepat, the existing concentration of cattle and plantation resources provides a physical rationale for testing this approach. Importantly, the designation of a "center" should not merely create another administrative label. It should identify participating groups, baseline cattle numbers, available plantation resources, shared assets, service delivery responsibilities, and clear monitoring indicators.

The third priority addresses farmer knowledge and practical technology. Only 38% of the surveyed farmers had received SISKA-specific training, 21% processed feed, and 24% had access to processing equipment. A training package should therefore be grounded in the tasks that farmers perform, including safe feed sourcing, simple feed processing and storage, manure management, animal health and reproduction, and basic business records. Linking demonstrations to group facilities would allow technical skills to be practiced in the same location where shared investments are used. Training should be evaluated not only by attendance but also by adoption of defined practices and the continued functioning of introduced technologies.

The next priorities remain significant. Risk management (A5) should address the practical hazards of feed shortages, disease, plantation chemicals, replanting periods, and uncontrolled grazing. Group economic governance (A7) can improve accountability, cooperative purchasing, financial discipline, and coordination across offices. Financing (A4) can support facilities only if operating models are viable and investment responsibilities clear. Technical SOPs (A8) can create minimum rules for cattle–plantation interactions. Finally, the lower rank for collective marketing (A6) does not mean markets should be neglected; rather, it suggests that other bottlenecks were judged more urgent, given that most respondents already reported relative ease in finding buyers.

Development implications and study limitations

For regional government, the evidence suggests a sequenced development agenda. Initial efforts can focus on mapping and convening potential partners, assessing groups that could operate demonstration centers, and negotiating plantation-access and technical cooperation agreements. A second set of activities can develop training modules, equipment-sharing arrangements, simple recording systems, and standard operating procedures. Follow-up monitoring can then examine feed-processing adoption, collective business functions, livestock health and productivity, financing performance, farmer income, and the incidence of plantation-related conflicts. This is an implementation implication derived from the ranked strategies, not an evaluated policy experiment.

The three priority strategies should be treated as mutually reinforcing rather than isolated budget items. Partnerships can expand access to knowledge, equipment, and financing; group centers can concentrate those resources into workable units; and training can enable farmers to use them effectively. This interpretation accords with the broader view of agricultural strategic management in which local resource advantages generate durable benefits only when linked to institutional and technological capacities (Gürel & Tat, 2017; Rangkuti, 2016). It also prevents expansion targets from obscuring the managerial weaknesses evident in the survey.

Several limitations shape the interpretation. First, the 100 farmers were selected using purposive and quota procedures, and the number of all eligible SISKA farmers was unknown; results are therefore descriptive of participants rather than statistically generalizable to the entire regency. Second, the SWOT and AHP findings depend on factor identification, scoring assumptions, and expert judgments; alternative panels or decision criteria may yield different rankings. Third, the available thesis text did not fully specify the AHP panel size or expose individual judgment matrices needed for independent replication. Fourth, the research did not establish causal effects of SISKA on cattle weight gain, farm profitability, or environmental performance. Future research should collect longitudinal production and financial data, document the expert assessment protocol more completely, and test the stability of AHP weights under sensitivity scenarios The survey and strategic-analysis approach follows established methodological discussions (Sugiyono, 2017; David, 2017).

IV. CONCLUSION

Cattle–oil palm integration is already practiced among the surveyed farmers in Pelepat Ilir and Pelepat Districts of Bungo Regency. Semi-intensive SISKA was most common (55%), and most respondents used plantation resources for feeding (88%), although feed processing (21%), access to equipment (24%), collective enterprise,

business records, and finance remained limited. The combined internal–external strategic analysis placed SISKA development in the strengths–opportunities quadrant, with coordinates (0.912, 0.866), supporting an expansion-oriented approach accompanied by safeguards against identified weaknesses and risks.

The expert-based AHP prioritized multiparty partnerships (0.1824), group-based SISKA production centers (0.1568), and farmer capacity development with technology adoption (0.1252). These priorities indicate that the principal management task is to connect regional production resources with functioning institutions, appropriate technology, coordinated services, and secure operational arrangements. Bungo Regency may therefore use the findings as an initial basis for integrated planning, while strengthening the evidence base through more complete expert-method reporting, implementation monitoring, and subsequent assessment of economic and ecological outcomes.

V. ACKNOWLEDGMENTS

The authors wish to express their sincere gratitude to the farmers and livestock herders in Bungo Regency for their cooperation and valuable contributions to this study. Heartfelt appreciation and thanks are also extended to the Department of Livestock and Fisheries of Bungo Regency for their assistance and support. Additionally, the authors would like to thank the faculty members and staff of the Faculty of Agriculture, Jambi University for their institutional support throughout this research.

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