Journal of Agro Complex Development Society
Vol 3(2) October 2026
https://agrocomplex.professorline.com/index.php/journal/index

# Regional Distribution of Beef and Buffalo Meat Production in Indonesia: A Statistical Analysis Based on Official National Data

**Zidane Rakha Aptabani[1*], Karjono[2], Aswin Rafif Khairullah[3]**

[1,2,3]Global Scholarly Research Institute, Indonesia
*Correspondence author: zidaner.a@gmail.com

**Abstract**

Beef and buffalo meat are strategic livestock commodities that contribute to animal protein availability and national food security in Indonesia. This study aims to analyze the regional distribution of beef and buffalo meat production in Indonesia using official national data from *Peternakan dalam Angka 2025*. A descriptive quantitative approach was applied by examining production data by island group and identifying the major regional contributors to national production. The results show that Indonesia's beef and buffalo meat production in 2025 was estimated at 515.60 thousand tons, increasing by 5.61% from 488.22 thousand tons in 2024. Java was the dominant production region, contributing 304.23 thousand tons or 59.01% of national production. Sumatra ranked second with 122.61 thousand tons or 23.78%, followed by Sulawesi, Bali and Nusa Tenggara, Kalimantan, and Maluku-Papua. At the provincial level, East Java was the largest producer, followed by Central Java and West Java. These findings indicate that beef and buffalo meat production in Indonesia remains spatially concentrated, particularly in Java. Strengthening regional production outside Java is essential to improve livestock food security and reduce regional supply vulnerability.

**Keywords:** Beef, Buffalo Meat, Livestock Production, Regional Distribution, Food Security, Indonesia

## 1. Introduction

The livestock subsector plays an important role in supporting food security, rural livelihoods, and national economic development. Livestock products, particularly meat, contribute to the fulfillment of animal protein needs and the improvement of human nutrition. Beef and buffalo meat are among the strategic livestock commodities in Indonesia because they are widely consumed and have strong economic value. These commodities also support livestock farmers, meat traders, slaughterhouse activities, and related agribusiness sectors. Therefore, understanding the regional distribution of beef and buffalo meat production is important for evaluating the capacity and resilience of domestic livestock systems.

Indonesia faces challenges in ensuring balanced livestock production across regions. Although national production continues to increase, the distribution of production is not evenly spread among islands and provinces. Some regions have strong livestock production capacity, while others remain highly dependent on supply from outside their areas. Regional concentration of production may

This work is licensed under a Creative Commons Attribution 4.0 International License.

create supply vulnerability, especially when demand is high in areas with limited production capacity. This situation highlights the need for statistical analysis of regional production patterns to identify dominant production centers and regions requiring stronger livestock development support.

Official livestock statistics provide an important basis for evaluating production performance and supporting agricultural policy. *Peternakan dalam Angka 2025* presents data on livestock population, meat production, consumption, supply-demand balance, export-import, prices, and other supporting indicators. These data are useful for assessing regional production capacity and identifying dominant production centers in Indonesia. Official data also allow researchers and policymakers to compare production performance across provinces and island groups using consistent statistical indicators. The publication further emphasizes that livestock data are needed for planning, monitoring, and evaluating livestock development programs.

This study aims to analyze the regional distribution of beef and buffalo meat production in Indonesia based on official national data from *Peternakan dalam Angka 2025*. The analysis focuses on island-level production, regional contribution, and major producing provinces. By calculating regional contribution, this study identifies the extent to which each island group contributes to national beef and buffalo meat production. The analysis also examines production changes between 2024 and 2025 to provide a clearer picture of recent production dynamics. The findings are expected to provide evidence-based insights for strengthening regional livestock development, reducing spatial production imbalance, and improving national meat supply resilience.

## 2. Materials and Methods

This study was conducted using a structured methodological framework to analyze the regional distribution of beef and buffalo meat production in Indonesia based on official national statistics [1], [2]. The research employed secondary data obtained from *Peternakan dalam Angka 2025* published by BPS-Statistics Indonesia [1]. The methodological approach was designed to describe regional production patterns, identify dominant production centers, and evaluate the contribution of each island group to national beef and buffalo meat production [11], [15]. Using official statistical data ensures that the analysis is objective, comprehensive, and representative of livestock production conditions across Indonesia [1], [4]. Consequently, the study provides reliable evidence for assessing regional production performance and supporting livestock development policies [5], [17].

The methodological framework consists of four main components. The first subsection describes the research design adopted in the study. The second subsection explains the official data source and the characteristics of the dataset used in the analysis [1]. The third subsection presents the variables and units of analysis employed to evaluate regional beef and buffalo meat production. Finally, the fourth subsection explains the data analysis method, including the calculation of Regional Contribution to assess the relative contribution of each region to national production [12], [15]. Together, these methodological components provide a systematic framework for interpreting regional production disparities and their implications for strengthening Indonesia's livestock sector and national food security [5], [20].

### 2.1 Research Design

This study employed a descriptive quantitative research design based on secondary data analysis. The descriptive quantitative approach was selected because the primary objective of the study was to describe and compare the regional distribution of beef and buffalo meat production using official national statistical data rather than to examine causal relationships [1], [11]. This research design enables the systematic presentation of production patterns across

provinces and island groups using standardized numerical indicators [12], [15]. Consequently, the study provides an objective overview of Indonesia's regional livestock production structure based on official statistical evidence [1], [2].

Secondary data analysis was considered the most appropriate approach because the required information had already been collected, verified, and published by government institutions through standardized statistical procedures [1], [4]. The use of official secondary data reduces potential measurement errors that may arise from independently conducted surveys while ensuring consistency in data definitions and reporting methods [2]. Furthermore, nationally compiled statistical data provide comprehensive coverage of all provinces in Indonesia, allowing reliable comparisons among regions [1], [15]. Therefore, the research findings are expected to accurately represent the actual condition of beef and buffalo meat production at the national level [3], [5].

Unlike experimental or survey-based studies, this research does not involve direct observation, field measurements, interviews, or questionnaire distribution. Instead, the study relies entirely on official statistical publications to evaluate regional production characteristics and identify differences in production capacity among regions [1], [2]. The analysis emphasizes descriptive interpretation of production data and examines regional disparities in livestock production [12], [17]. Such an approach is appropriate for identifying production concentration, dominant production areas, and regional imbalances within Indonesia's livestock sector [15], [18].

In addition to describing production levels, the study adopts a comparative analytical perspective by examining production performance among island groups and provinces. Regional contribution analysis was conducted to determine the proportion of national beef and buffalo meat production generated by each region [15]. These analytical approaches provide a clearer understanding of regional production dynamics and strengthen the interpretation of spatial production patterns [12], [17]. Overall, the selected research design provides a systematic and evidence-based framework for evaluating regional livestock production and supporting policy recommendations aimed at improving national meat production and food security [5], [20].

**2.2 Data Source**

The data used in this study were obtained from *Peternakan dalam Angka 2025*, published by BPS-Statistics Indonesia [1]. This publication serves as an official national statistical reference for livestock-related indicators in Indonesia. It provides comprehensive information on livestock population, meat production, meat consumption, supply-demand balance, export-import data, livestock prices, business cost structures, and other supporting indicators [1], [2]. Therefore, the publication is considered appropriate as the main data source for analyzing regional livestock production patterns.

The study specifically used data from the section on beef and buffalo meat production. This section presents production data by province and island group, allowing comparisons between regional and national production levels [1]. The availability of data for both 2024 and 2025 also enables the study to examine recent changes in production performance. By using this section, the analysis can identify dominant production regions, low-production areas, and spatial patterns in beef and buffalo meat production [2], [15].

The production data used in this study refer to beef and buffalo meat production measured in tons. According to the publication, meat production includes skeletal meat, offal, and variety meat derived from local beef cattle, ex-import beef cattle, culled dairy cattle, and buffalo [1]. This definition is important because it clarifies that the production figures represent total edible meat output from several livestock sources rather than only fresh carcass meat. Therefore, the data provide a broader picture of domestic beef and buffalo meat availability [3], [5].

The use of official BPS data provides several methodological advantages. First, the data are compiled using standardized statistical procedures and official reporting systems [1]. Second, the coverage includes all provinces in Indonesia, making it possible to conduct national and regional comparisons [2]. Third, the data are published by a recognized national statistical institution, which increases the reliability and credibility of the analysis [1], [4].

In this study, the data were processed to calculate regional contribution. These calculations transformed official statistical data into analytical indicators that are more useful for interpreting regional livestock production dynamics [15]. The resulting indicators were subsequently used to support discussions on production concentration, regional disparity, and national meat supply resilience [5], [20].

**2.3 Variables and Units of Analysis**

The primary variable analyzed in this study was beef and buffalo meat production, measured in tons. This variable represents the total quantity of beef and buffalo meat produced within each administrative region during the reporting period [1]. Meat production was selected as the principal indicator because it directly reflects the production capacity of the livestock sector and its contribution to national food availability [3], [5]. As one of Indonesia's strategic livestock commodities, beef and buffalo meat production also serves as an important indicator for evaluating livestock development and food security performance [2], [18].

The unit of analysis consisted of regional production based on major island groups in Indonesia. The regional approach was selected to evaluate the spatial distribution of livestock production and to identify differences in production capacity among regions [15]. The island groups analyzed in this study were Sumatra, Java, Bali and Nusa Tenggara, Kalimantan, Sulawesi, and Maluku–Papua, following the regional classification presented in *Peternakan dalam Angka 2025* [1]. This regional classification enables comparisons between western, central, and eastern Indonesia while providing a broader perspective on national livestock production patterns [11], [15].

In addition to island-level analysis, selected provincial data were incorporated to identify the largest contributors to national beef and buffalo meat production. Provincial analysis provides more detailed information regarding production concentration and allows the identification of leading livestock production centers [15]. The comparison among provinces is important because production capacity is not evenly distributed across Indonesia [12], [17]. Identifying major producing provinces provides valuable information for evaluating regional competitiveness and supporting evidence-based livestock development planning [5], [20].

To strengthen the regional analysis, the Regional Contribution (RC) indicator was employed to measure the percentage contribution of each island group to total national beef and buffalo meat production [15]. This indicator provides a clearer understanding of regional production performance beyond absolute production values. It also facilitates comparison among island groups using a standardized measurement [12], [17].

Overall, the combination of production data, regional classification, and analytical indicators provides a comprehensive framework for evaluating Indonesia's beef and buffalo meat production system [1], [15]. The selected variables enable the identification of dominant production regions, regional disparities, and production patterns across the country [11], [20]. Furthermore, these variables support the interpretation of regional livestock capacity and its contribution to strengthening national meat supply and food security [3], [5].

**2.4 Data Analysis Method**

To examine the spatial distribution of beef and buffalo meat production across Indonesia, this study employed Regional Contribution (RC) analysis [15]. This indicator measures the

percentage contribution of each island group or province to total national beef and buffalo meat production. The Regional Contribution analysis provides a clear description of the relative importance of each region in supporting the national meat supply and identifying the dominant production centers [12], [17]. A higher RC value indicates that a region contributes more substantially to national production, whereas a lower value reflects a relatively smaller contribution. The Regional Contribution was calculated using Equation (1):

$$RC_i = \frac{P_i}{P_{Indonesia}} \times 100 \quad (1)$$

In Equation (1), RCi represents the Regional Contribution of region *i* (%), Pi represents beef and buffalo meat production in region *i* (tons), and PIndonesia represents the total national beef and buffalo meat production in Indonesia (tons). The Regional Contribution values were calculated to determine the relative contribution of each island group to national production. These values were subsequently used to compare production performance among regions, identify dominant production centers, and evaluate regional disparities in beef and buffalo meat production [15], [20]. The findings also provide an empirical basis for formulating policies aimed at strengthening regional livestock development and improving national food security [3], [5].

## 3. Results

This section presents the results of the statistical analysis of beef and buffalo meat production in Indonesia based on official data published in *Peternakan dalam Angka 2025* [1]. The analysis focuses on describing national production performance, regional distribution patterns, and the contribution of major producing provinces to Indonesia's total beef and buffalo meat production. By examining production data across island groups and provinces, the study provides an overview of the spatial structure of Indonesia's livestock production system [1], [15]. The Regional Contribution analysis further illustrates the relative importance of each region in supporting the national meat supply and highlights disparities in production capacity across the country [12], [15]. These findings provide quantitative evidence for understanding regional livestock production patterns and their implications for national food security [3], [5], [20].

The presentation of the results is organized into three main subsections. The first subsection describes the overall performance of national beef and buffalo meat production in 2025. The second subsection examines the regional distribution pattern by comparing production among the major island groups in Indonesia and evaluating their contributions to national production [15]. The final subsection identifies the leading producing provinces and discusses their role in supporting Indonesia's livestock sector [11], [18]. Together, these results provide a comprehensive overview of regional production concentration and serve as the basis for the subsequent discussion on livestock development and food security policies [5], [20].

### 3.1 National Beef and Buffalo Meat Production

Official statistics show that Indonesia's beef and buffalo meat production in 2025 was estimated at 515.60 thousand tons [1]. This figure represents an increase of 5.61% compared with 2024, when production reached 488.22 thousand tons [1]. The increase indicates that national production capacity improved during the observed period and reflects continued development of Indonesia's livestock sector [2], [18]. However, the growth in total production does not necessarily indicate that production was evenly distributed across all regions [15], [17]. Therefore, further regional analysis is required to identify the contribution of each island group and to determine whether beef and buffalo meat production remains concentrated in specific production centers [5], [12], [20].

Table 1. Beef and buffalo meat production by island group in Indonesia, 2025

| No. | Island Group | Production (tons) | Share of National Production (%) |
|---|---|---|---|
| 1 | Java | 304,231 | 59.01 |
| 2 | Sumatra | 122,607 | 23.78 |
| 3 | Sulawesi | 35,860 | 6.95 |
| 4 | Bali and Nusa Tenggara | 26,930 | 5.22 |
| 5 | Kalimantan | 20,105 | 3.90 |
| 6 | Maluku and Papua | 5,864 | 1.14 |
| | Indonesia | 515,597 | 100.00 |

**3.2 Regional Distribution Pattern**

The data show that Java was the dominant production center of beef and buffalo meat in Indonesia. In 2025, Java produced 304,231 tons, equivalent to 59.01% of total national production [1]. This means that more than half of Indonesia's beef and buffalo meat production was concentrated in one island group. Such dominance indicates that Java remains the main livestock meat production region in Indonesia and confirms its strategic role in the national livestock industry [3], [11], [18]. This concentration also reflects the importance of Java in supporting national meat availability and maintaining the stability of domestic livestock production [5], [20].

Sumatra ranked second with production of 122,607 tons, contributing 23.78% of national production [1]. Although its contribution was lower than Java, Sumatra still played an important role in the national livestock production system [13], [17]. Together, Java and Sumatra accounted for approximately 82.79% of national beef and buffalo meat production [1]. This pattern indicates a strong concentration of production in western Indonesia and highlights regional differences in livestock production capacity [15], [16]. Therefore, western Indonesia can be considered the primary production base for beef and buffalo meat in Indonesia [3], [18].

Sulawesi produced 35,860 tons, equivalent to 6.95% of national production [1]. This contribution placed Sulawesi as the third-largest island group in beef and buffalo meat production. Although the share was relatively small compared with Java and Sumatra, Sulawesi remains an important livestock production region in eastern Indonesia [14], [17]. Its production capacity contributes to regional meat availability and supports local food security [5], [20]. However, the considerable difference between Sulawesi and the two largest producing regions indicates substantial regional production disparities that require further development efforts [15], [18].

Bali and Nusa Tenggara contributed 26,930 tons, or 5.22% of national production, while Kalimantan contributed 20,105 tons, or 3.90% [1]. These regions had moderate but still meaningful contributions to national beef and buffalo meat production. Their production levels indicate considerable livestock development potential, although they have not yet reached the production scale observed in Java and Sumatra [12], [17]. Strengthening livestock production in these regions could reduce excessive dependence on the dominant production centers while improving regional economic development [13], [18]. Such efforts would also contribute to a more balanced and resilient national meat supply system [5], [20].

Maluku and Papua recorded the lowest production, with only 5,864 tons or 1.14% of national production [1]. This very small share indicates that beef and buffalo meat production in the easternmost regions remains limited. The low contribution may be associated with differences in livestock population, infrastructure availability, market accessibility, and production systems [15], [16]. From a food security perspective, this condition suggests that Maluku and Papua may depend more heavily on meat supplies from other regions [5], [20]. Therefore, future livestock development policies should provide greater support to underperforming regions to reduce

regional production disparities and strengthen national production resilience [13], [17].

### 3.3 Major Producing Provinces

At the provincial level, beef and buffalo meat production showed considerable variation across Indonesia. The official statistics indicate that East Java was the largest producer, with production reaching 100.88 thousand tons in 2025, followed by Central Java with 81.83 thousand tons and West Java with 80.73 thousand tons [1]. These figures demonstrate that provincial production was highly concentrated in a limited number of regions rather than being evenly distributed throughout the country. Such variation reflects differences in livestock resources, production capacity, infrastructure, and regional agricultural development [3], [11], [18]. These findings further confirm the unequal spatial distribution of Indonesia's livestock production system [15].

The dominance of East Java, Central Java, and West Java confirms the important role of Java as the national center of beef and buffalo meat production [1]. Collectively, these three provinces contributed a substantial proportion of Indonesia's total meat production. Their strong production performance is supported by relatively large cattle populations, developed livestock infrastructure, efficient marketing networks, and proximity to major consumer markets [14], [18]. These comparative advantages have enabled the provinces to maintain consistently high production capacity over time [3], [11]. Consequently, these provinces play a strategic role in ensuring the continuity of Indonesia's national meat supply [5], [20].

Outside Java, several provinces also contributed significantly to national production, although their production volumes remained considerably lower than those of the leading provinces [1]. North Sumatra, South Sulawesi, Lampung, and West Nusa Tenggara were among the important regional producers supporting domestic meat availability. These provinces function as regional livestock production centers and contribute to strengthening local and national meat supply systems [13], [17]. Their production performance demonstrates that livestock development potential also exists outside Java, although substantial regional disparities remain [15], [18]. Expanding production capacity in these provinces could improve regional balance and reduce excessive production concentration [5], [20].

In contrast, several provinces recorded relatively low production levels. Papua Barat, for example, produced only about 0.30 thousand tons, making it one of the smallest contributors to national beef and buffalo meat production [1]. Other provinces in eastern Indonesia also exhibited comparatively limited production capacity. These low production levels may be associated with smaller livestock populations, limited infrastructure, geographical constraints, and restricted market access [15], [16]. Consequently, these regions continue to face significant challenges in expanding livestock production and improving regional meat availability [13], [17].

Overall, the provincial distribution highlights considerable disparities in beef and buffalo meat production across Indonesia. The concentration of production in a relatively small number of provinces indicates that the national meat supply remains highly dependent on several dominant production centers, particularly those located on Java Island [1], [15]. Although this concentration contributes to production efficiency, it may also increase vulnerability if disruptions occur in these strategic regions [5], [20]. Therefore, strengthening livestock development programs in provinces with lower production capacity is essential for promoting a more balanced regional production system [13], [17]. Such efforts are expected to enhance the resilience, sustainability, and long-term stability of Indonesia's national meat supply [3], [18], [20].

## 4. Discussion

The findings indicate that beef and buffalo meat production in Indonesia is highly

concentrated on Java Island. In 2025, Java contributed approximately 59.01% of total national beef and buffalo meat production, making it the dominant production region in the country [1]. This concentration reflects the availability of relatively large cattle populations, well-established livestock farming systems, developed slaughterhouse facilities, and strong market access [3], [11], [18]. Java also serves as the largest consumer market, encouraging continuous investment in livestock production and supporting industries [14], [17]. Consequently, the island plays a strategic role in maintaining national meat availability and supporting Indonesia's livestock sector [5], [20].

Sumatra emerged as the second-largest production region, contributing 23.78% of national beef and buffalo meat production [1]. Although its production was substantially lower than Java, Sumatra still plays an important role in strengthening the national meat supply [13], [18]. The region possesses considerable livestock resources, extensive agricultural land, and favorable environmental conditions for cattle production [11], [14]. Strengthening breeding programs, feed availability, and livestock management in Sumatra could significantly increase regional production capacity [3], [17]. Such improvements would help diversify national production and reduce excessive dependence on Java as the primary production center while improving national supply resilience [5], [20].

The relatively low production recorded in Kalimantan, Sulawesi, Bali and Nusa Tenggara, and particularly Maluku and Papua indicates considerable regional disparities in Indonesia's livestock sector [1]. These differences may be influenced by variations in livestock population, production infrastructure, transportation networks, access to animal health services, and regional market development [3], [15], [16]. Geographic conditions and uneven investment in livestock production also contribute to differences in regional production performance [9], [18]. As a result, many eastern regions continue to contribute only a small proportion of national beef and buffalo meat production despite having substantial land resources [1], [15]. Addressing these structural constraints is essential for promoting more balanced livestock development across Indonesia [13], [17].

The spatial concentration of production has important implications for national food security and livestock policy. Heavy reliance on a limited number of production regions may increase vulnerability to disease outbreaks, climate variability, natural disasters, or market disruptions affecting those regions [5], [6], [20]. A more balanced regional production system would improve supply resilience and reduce the risk of regional shortages [7], [20]. Government policies should therefore focus on strengthening livestock production outside the dominant regions through improved breeding programs, feed resource development, veterinary services, slaughterhouse modernization, and transportation infrastructure [3], [12], [17]. These interventions would contribute to a more resilient and sustainable national livestock production system while supporting long-term meat self-sufficiency [5], [18], [20].

Overall, this study demonstrates that regional production analysis provides valuable information for evaluating the spatial structure of Indonesia's livestock industry. Although national beef and buffalo meat production increased between 2024 and 2025, production remains highly concentrated in several provinces located on Java Island [1]. This finding indicates that national production growth alone is insufficient as an indicator of livestock development because regional disparities remain substantial [15], [16]. Future livestock development strategies should therefore emphasize balanced regional growth while maintaining productivity in existing production centers [13], [17]. Such an approach is expected to strengthen national meat supply resilience, improve regional equity, and support Indonesia's long-term food security objectives [5], [7], [20].

## 5. Conclusion

This study analyzed the regional distribution of beef and buffalo meat production in

Indonesia using official data from *Peternakan dalam Angka 2025* [1]. The analysis focused on evaluating production performance across island groups and identifying the major provincial production centers. The findings indicate that Indonesia produced approximately 515.60 thousand tons of beef and buffalo meat in 2025 [1]. This figure represents an increase of 5.61% compared with the national production recorded in 2024 [1]. Although national production showed positive growth, the distribution of production remained uneven across regions, indicating persistent regional disparities in livestock production capacity [15], [20].

The analysis revealed that Java was the dominant production region, contributing 304.23 thousand tons or 59.01% of total national production, while Sumatra ranked second with 122.61 thousand tons, accounting for 23.78% of national production [1]. Together, these two island groups contributed more than four-fifths of Indonesia's beef and buffalo meat production [1]. In contrast, Sulawesi, Bali and Nusa Tenggara, Kalimantan, and Maluku–Papua contributed considerably smaller proportions [1]. These findings indicate that Indonesia's livestock production remains highly concentrated in the western part of the country, particularly on Java Island [15], [18]. Such spatial concentration highlights the need for more balanced regional livestock development to improve production resilience and reduce regional disparities [5], [20].

At the provincial level, East Java, Central Java, and West Java were identified as the largest beef and buffalo meat producers [1]. Their dominant production confirms the strategic role of Java as the principal center of Indonesia's livestock industry [3], [11], [18]. While production concentration contributes to efficient national meat supply, it may also increase vulnerability if disruptions occur in these key production areas [5], [20]. The observed regional disparities suggest that livestock production capacity remains uneven among Indonesian provinces [15], [16]. Therefore, strengthening livestock production outside the dominant provinces should become an important component of future agricultural development policies [13], [17].

The findings also demonstrate the importance of regional statistical analysis for evaluating national livestock performance. Measuring regional production contributions provides a clearer understanding of spatial production patterns than relying solely on national production totals [12], [15]. Such information can assist policymakers in identifying regions with strong production potential as well as regions requiring additional development support [13], [17]. Evidence-based regional analysis is therefore essential for designing more targeted livestock development programs and improving the effectiveness of agricultural policies [3], [5]. This approach also contributes to better planning for sustainable livestock production and national food security [6], [20].

Future livestock development policies should prioritize balanced regional growth through increased investment in breeding programs, feed resource development, veterinary services, slaughterhouse modernization, and livestock marketing infrastructure [3], [12], [17]. Expanding production capacity outside Java will help reduce excessive regional concentration while improving the resilience of Indonesia's meat supply system [5], [20]. Strengthening regional livestock production will also contribute to improving farmer income, increasing domestic meat availability, and reducing disparities among provinces [11], [18]. In addition, continuous monitoring using official national statistical data should be maintained to evaluate production performance and support evidence-based decision-making [1], [2]. Through these integrated efforts, Indonesia can strengthen the sustainability of its livestock sector and enhance long-term national food security [5], [7], [20].

**References**

[1] BPS-Statistics Indonesia, *Peternakan dalam Angka 2025*. Jakarta, Indonesia: BPS-Statistics

Indonesia, 2026.

[2] BPS-Statistics Indonesia, *Statistik Indonesia 2025*. Jakarta, Indonesia: BPS-Statistics Indonesia, 2025.

[3] Directorate General of Livestock and Animal Health, *Livestock and Animal Health Statistics 2024*. Jakarta, Indonesia: Ministry of Agriculture of the Republic of Indonesia, 2024.

[4] Ministry of Agriculture of the Republic of Indonesia, *Agricultural Statistics 2025*. Jakarta, Indonesia: Ministry of Agriculture, 2025.

[5] Food and Agriculture Organization of the United Nations, *The State of Food Security and Nutrition in the World 2024*. Rome, Italy: FAO, 2024.

[6] Food and Agriculture Organization of the United Nations, *World Food and Agriculture: Statistical Yearbook 2024*. Rome, Italy: FAO, 2024.

[7] OECD and FAO, *OECD–FAO Agricultural Outlook 2024–2033*. Paris, France: OECD Publishing, 2024.

[8] OECD and FAO, *OECD–FAO Agricultural Outlook 2025–2034*. Paris, France: OECD Publishing, 2025.

[9] World Bank, *Indonesia Economic Prospects: Strengthening Resilience*. Washington, DC, USA: World Bank, 2024.

[10] Asian Development Bank, *Asian Development Outlook 2024*. Manila, Philippines: ADB, 2024.

[11] A. Agus and T. S. M. Widi, "Current situation and future prospects for beef cattle production in Indonesia: A review," *Asian-Australasian Journal of Animal Sciences*, vol. 31, no. 7, pp. 976–983, 2018.

[12] S. Saptana and H. P. Saliem, "Development strategy of beef cattle agribusiness in Indonesia," *Forum Penelitian Agro Ekonomi*, vol. 33, no. 1, pp. 1–16, 2015.

[13] N. Ilham, "Beef self-sufficiency policy and livestock development in Indonesia," *Analisis Kebijakan Pertanian*, vol. 14, no. 1, pp. 1–14, 2016.

[14] A. Priyanti, I. G. A. P. Mahendri, F. Cahyadi, and R. A. Cramb, "Income over feed cost for small-to-medium scale beef cattle fattening operations in Indonesia," *Journal of the Indonesian Tropical Animal Agriculture*, vol. 45, no. 4, pp. 366–376, 2020.

[15] M. Mulyadi, "Distribution, development, stabilizer, and consumer areas status of livestock development in Indonesia," *Jurnal Ilmu-Ilmu Peternakan*, vol. 34, no. 3, pp. 332–348, 2024.

[16] R. P. C. Fanggidae, "Supply chain analysis of beef in Kupang City," *Eduvest: Journal of Universal Studies*, vol. 3, no. 1, pp. 123–134, 2023.

[17] M. S. Rusdiana and S. Praharani, "Development strategy of beef cattle farming to support meat self-sufficiency in Indonesia," *IOP Conference Series: Earth and Environmental Science*, vol. 492, Art. no. 012063, 2020.

[18] H. Mayulu, Sunarso, C. I. Sutrisno, and Sumarsono, "Beef cattle development policy in Indonesia," *Journal of Animal Science Advances*, vol. 3, no. 6, pp. 322–332, 2013.

[19] D. I. Givens, "Review: Dairy foods, red meat and processed meat in the diet: Implications for health," *Animal*, vol. 12, no. 8, pp. 1611–1622, 2018.

[20] M. Herrero et al., "Livestock and sustainable food systems: Status, trends, and priority actions," *Annual Review of Environment and Resources*, vol. 46, pp. 1–27, 2021.