Analysis of Opportunities and Threats in Chicken Farming (Comparative Case Study of Farming in Indonesia and the United States)

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ARTICLE INFO

ABSTRACT

This study aims to analyze the opportunities and threats in the poultry farming sector, particularly chicken farming, through a comparative case study between Indonesia and the United States. The poultry industry plays a crucial role in supplying animal-based protein, especially chicken meat and eggs, in both countries. In Indonesia, the industry faces various challenges such as limited technology, feed price fluctuations, livestock diseases, and weak integration between smallholder farmers and large-scale producers. However, significant opportunities exist alongside growing domestic demand, government support, and advancements in farming technology (Azizah et al., 2024; Ministry of Agriculture, 2024). On the other hand, the United States dominates the global poultry market with its highly integrated, efficient, and data-driven production systems (Shahbandeh, 2024). Using a comparative approach and literature review from official sources such as Statistics Indonesia and the Ministry of Agriculture, this research concludes that Indonesia holds substantial potential to strengthen its poultry industry through production modernization, supportive policies, and human resource development. Benchmarking with the U.S. poultry system is expected to provide strategic direction for the sustainable development of the national poultry sector.

Keywords: Poultry Farming, Chicken, Indonesia, United States, Strategy.

1. INTRODUCTION

The poultry farming industry, particularly chicken farming, is one of the strategic sectors in the provision of animal-based food in various countries, including Indonesia and the United States. Chicken meat and eggs have become the primary sources of animal protein consumed by the general public due to their relatively affordable prices and abundant availability (Zaheer, 2015). The vital role of this sector is not only in food security, but also in creating jobs and supporting national economic growth. Therefore, analysis of the dynamics of this industry is important as a basis for formulating policies and strategies for sustainable poultry farming development.

In Indonesia, the development of the poultry farming industry faces various fundamental challenges. Some of these include technological limitations, high feed price fluctuations, livestock disease outbreaks, and the lack of integration between small-scale farmers and large-scale industries (Azizah et al., 2024). Additionally, uneven infrastructure and limited access to financing further exacerbate the conditions of small-scale farmers. This impacts production efficiency and the quality of livestock products, which remain suboptimal compared to those of developed countries. These constraints are the primary barriers to enhancing the competitiveness of the national poultry industry in both domestic and international markets.

Nevertheless, Indonesia has significant potential for poultry farming development. Population growth and increasing public awareness of the importance of nutrition drive annual demand for chicken meat and eggs. The government has also demonstrated its commitment through various support programmes, such as providing high-quality breeding stock, technical training for farmers, and strengthening data and information

on livestock commodities (Shikur, 2023). Additionally, technological advancements in the poultry sector, such as closed-house systems and digitalised farm management, offer opportunities to enhance productivity and efficiency.

Unlike Indonesia, the United States has long been one of the world's largest poultry producers with a highly integrated and efficient production system. The country is able to combine advanced technology, data-driven management, and a strong industrial structure to produce large quantities of poultry products at low production costs (Franzo et al., 2023). This success can serve as a benchmark for Indonesia in developing its poultry farming industry. Therefore, a comparative study between the two countries is important to identify best practices, opportunities for technology adaptation, and potential for cooperation in developing a competitive and sustainable poultry farming system in the future.

1.1. Chicken Farming in Indonesia and the United States

The chicken farming sector in Indonesia is one of the key pillars in the national supply of animal protein. There are three main types of chickens that are rapidly growing in Indonesia, namely native chickens (ayam kampung), broilers, and layers. Data from the Central Statistics Agency (BPS) and the Ministry of Agriculture indicate a trend of increasing chicken populations during the period from 2022 to 2024. The following table shows chicken population data in Indonesia by type for the years 2022 to 2024:

Table 1. Chicken Population in Indonesia by Type for the Years 2022–2024

| Year	Free-range chicken	Broiler chicken	Laying hens
2022	308.601.685	3.112.076.615	179.490.275
2023	399.037.981	3.509.557.649	160.484.774
2024	412.447.070	3.460.886.485	171.916.217

Source: Central Statistics Agency & Ministry of Agriculture, 2024

The data above shows that the broiler chicken population dominates the poultry industry in Indonesia with more than 3 billion birds each year. Although there was a slight decline in 2024 compared to 2023, this figure still shows significant dominance. On the other hand, free-range chickens have seen a steady increase from 308 million in 2022 to over 412 million in 2024, indicating growing market interest in local chickens. Meanwhile, egg-laying chickens experienced a decline in 2023 but rebounded in the following year.

This increase in population reflects the high demand for poultry products, both meat and eggs. However, this increase in population must be balanced with good farm management systems to avoid new issues, such as infectious diseases and declining product quality (Goulding et al., 2008). Therefore, the development of farming technology and policy support are key to ensuring the sustainability of this industry in the future.

Meanwhile, the poultry farming industry in the United States is one of the largest and most advanced in the world. The poultry production system in the US is known for its highly efficient vertical integration, where large companies control nearly the entire production chain, from breeding, feed, rearing, to the distribution of final products (Shahbandeh, 2024). High-tech innovations such as data analytics, automated poultry housing, and digital-based management are key factors in enhancing productivity and reducing production costs.

The broiler chicken population in the United States shows steady growth in line with high domestic and export demand (Davis et al., 2013). In addition, the US also produces large quantities of laying hens to meet the demand for fresh eggs and egg products. With efficient and large-scale production, the US is able to supply the domestic market and export poultry products to various countries. The following table illustrates the population of major poultry in the United States during the period from 2022 to 2024:
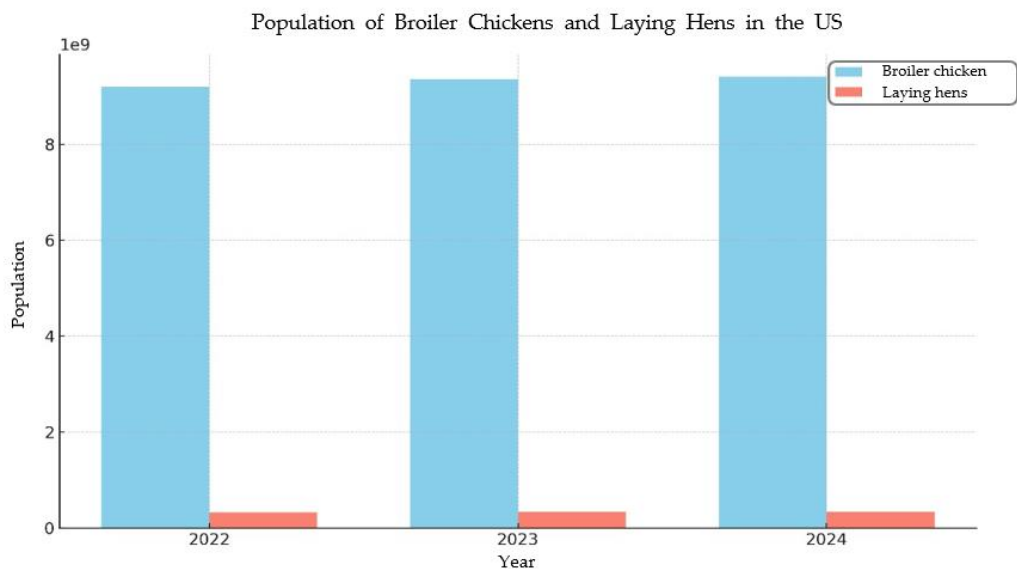
Figure 1. Population of Major Poultry in the United States During the Period from 2022 to 2024
Source : Shahbandeh (2023)

The diagram above shows that the broiler chicken population in the United States is very large, reaching more than 9 billion birds annually. This figure reflects high mass production capacity and is the backbone of the US poultry industry. Meanwhile, the laying hen population also shows a steady upward trend, supporting domestic and export egg market demand.

This steady growth demonstrates the success of an integrated and efficient production system in the US, with the application of modern technology and optimal production management. This contrasts with Indonesia, which still faces challenges in integration and production technology. Therefore, this data provides a clear picture of the benchmarking potential that Indonesia can adopt in adopting the US poultry production model to enhance national competitiveness.

2. RESEARCH METHODS

This study uses a comparative approach and literature analysis from official sources. The objective is to analyse the opportunities and threats in the poultry farming sector, particularly chickens, through a comparative case study between Indonesia and the United States. It also aims to gain a deeper understanding of the opportunities and threats faced by each country in developing the poultry farming sector.

3. RESULTS AND DISCUSSION

3.1. Opportunities for Chicken Poultry Farming in Indonesia Compared to the United States

Chicken farming in Indonesia has great potential for growth, mainly due to the increase in domestic demand for chicken meat and eggs in line with population growth and public awareness of nutrition. The Central Statistics Agency has recorded an upward trend in the population of broiler chickens and native chickens over the last three years. This increase in population reflects the vast potential of the domestic market.

This opportunity is further strengthened by various government programmes such as the provision of high-quality seeds, technical training, and the strengthening of livestock infrastructure through digitalisation and closed house systems, which can improve the efficiency and productivity of small and medium-sized farmers (Azizah et al., 2024).

From a technological perspective, although Indonesia has not yet fully adopted integrated production systems like those in the United States, advancements in livestock technology innovation open significant opportunities for modernisation. The potential for adapting technologies such as data-based management systems, feed automation, and digital monitoring of barn temperature and humidity presents a major opportunity to enhance productivity and reduce operational costs. The government, through the Ministry of

Agriculture is also encouraging the adoption of these innovations to drive digital transformation in the livestock sector.

On the other hand, the United States has demonstrated the superiority of its efficient, integrated, and export-oriented poultry farming system. The broiler chicken population, which exceeds 9 billion birds annually (Shahbandeh, 2023), highlights its extraordinary production capacity. This presents a learning opportunity or benchmarking for Indonesia, particularly in terms of production management, vertical integration, and the utilisation of cutting-edge technology. The US poultry industry system, which efficiently covers the entire supply chain from breeding to the distribution of final products, can serve as a model for building a stronger national poultry farming ecosystem.

Furthermore, opportunities for international collaboration are also wide open, for example through foreign investment, technology transfer, or training cooperation between farmers and foreign institutions. Indonesia can leverage its strategic position in Southeast Asia to position itself as a regional poultry production hub, especially if it can develop a halal certification system, quality assurance, and globally recognised health standards.

Given these developments, both Indonesia and the United States have specific opportunities that can complement each other. Indonesia has a large domestic market, abundant labour, and policy support that is beginning to move towards modernisation. Meanwhile, the US has technology, production systems, and a vast export market. Therefore, Indonesia's future poultry industry development strategy needs to strengthen technology adoption, improve supply chain integration, and establish data-driven incentive policies to compete globally.

3.2. Threats to the Poultry Industry in Indonesia and the United States

The following are some of the threats to the poultry industry in Indonesia and the United States:

1) Risk of Infectious Diseases and Weak Biosecurity

In Indonesia, weak biosecurity practices are one of the main factors contributing to the spread of poultry diseases such as avian influenza. According to Prof. Dr. drh. Michael Haryadi Wibowo from the Faculty of Veterinary Medicine at UGM, many farms neglect sanitation and disinfection procedures, such as failing to adequately clean egg boxes and chicken cages, thereby increasing the risk of infection. In the United States, despite a more integrated production system, avian influenza outbreaks remain a serious threat. Since 2022, the virus has killed more than 173 million birds and infected more than 1,000 dairy farms, with 70 cases of human infection, mostly among farm workers.

2) Dependence on Antibiotics and Antimicrobial Resistance

The excessive use of antibiotics in poultry farming in Indonesia has raised concerns about antimicrobial resistance (AMR). Data from the Ministry of Health shows that there were 1.2 million deaths in Indonesia due to infections that could no longer be treated with antibiotics. Although the use of antibiotics as growth promoters has been banned since 2018, this practice is still found in the field. In the United States, despite stricter regulations, poultry transportation practices that do not prioritise animal welfare, such as shipping chicks by post without temperature and food control, have caused mass deaths and highlighted the need for systemic improvements.

3) Feed Price Fluctuations and Dependence on Imports

Feed prices are the largest cost component in poultry farming, accounting for 60-70% of total production costs. In Indonesia, domestic corn prices are often nearly double the world price of corn, causing financial pressure on farmers. Dependence on imports of feed raw materials such as corn and soybeans makes the industry vulnerable to global price fluctuations. In the United States, despite more stable feed production, disease outbreaks such as avian flu have caused egg prices to surge, reaching $4.95 per dozen in January 2025, prompting the government to allocate $1 billion in response efforts.

4) Industrial Structure Imbalances and Market Competition

The poultry industry in Indonesia is dominated by large companies that control the supply chain from upstream to downstream, including the prices of chicks, feed, and medicines. This makes it difficult for small farmers to compete and often traps them in unequal partnership systems. In addition, the influx of cheaper

imported chicken products exacerbates competition in the domestic market. In the United States, despite a more efficient and integrated production system, intensive farming practices have raised concerns about animal welfare and environmental impacts, as well as increasing the risk of spreading zoonotic diseases.

5) Strategy for Developing Poultry Farming in Indonesia with the United States

In the United States, the industrialisation of poultry farming has been structured since the 1950s through a fully integrated vertical system. Large companies such as Tyson Foods and Perdue Farms control the entire supply chain: from hatcheries, feed production, rearing, to the distribution of final products. This strategy enables large-scale efficiency and supply stability. In contrast, in Indonesia, vertical integration is still limited to large companies such as Japfa and Charoen Pokphand. Meanwhile, many small-scale farmers still operate independently or within partnership systems that tend to be unequal. According to the Central Statistics Agency, over 65% of broiler chicken production in Indonesia still comes from small-scale farms that are not integrated.

The US adopts cutting-edge technology in chicken production, such as automatic temperature monitoring, cage cleaning robots, and AI applications for livestock health management. The USDA reports that over 80% of poultry farms in the US have adopted IoT (Internet of Things) technology for real-time monitoring of cage environmental conditions. Meanwhile, poultry farms in Indonesia still face challenges in adopting technology, both due to limited access to capital and technical skills. Innovations such as closed-house coops are beginning to be implemented, but they only cover around 35% of commercial farms on Java Island and have not yet reached small-scale farms.

The United States enforces strict biosecurity regulations through the National Poultry Improvement Plan (NPIP) and USDA regulations, which include mandatory reporting in the event of an avian influenza outbreak. The government also provides incentives to farmers who vaccinate their birds and improve sanitation standards. Indonesia is beginning to follow a similar direction with its Farm Compartmentalisation Programme, but its implementation remains uneven. According to the Directorate General of Livestock and Animal Health (Ditjen PKH), only 23% of broiler farms meet level 3 biosecurity standards, meaning there are still many gaps in disease prevention.

In the United States, poultry marketing strategies are focused on branding, product differentiation (organic, antibiotic-free, and cage-free), and exports. USDA data (2023) indicates that US chicken exports reached 3.2 million metric tons in 2022, to over 150 countries. Indonesia still faces challenges in this area due to high logistics costs and inconsistent product quality. Nevertheless, some micro and medium-sized enterprises in Indonesia have begun to implement diversification strategies such as frozen processed products, organic chicken, and e-commerce-based marketing to reach millennial consumers. According to research from Soedjana (1997), the potential for growth in the domestic processed chicken market is increasing by 12% per year, driven by changes in the consumption patterns of urban communities.

Table 2. Comparison of Poultry Farming Strategies (Indonesia vs. United States)

Strategic Aspects	Indonesia	United States
Industrial Model	Dominated by small farmers and partnerships	Full vertical integration by large corporations
Production Technology	Limited technology adoption (35% closed house)	IoT and AI used in >80% of farms
Biosecurity	Only 23% meet level 3 biosecurity standards	Compliant with NPIP and national vaccination programmes
Product Diversification	Starting to grow (frozen chicken, organic, MSMEs)	Mature (no antibiotics, global exports)
Exsport	Very limited	3.2 million tonnes/year to 150 countries

Source: Indonesian Central Statistics Agency and Ministry of Agriculture of the Republic of Indonesia

The table shows that the United States has implemented a more systematic and standardised poultry farming strategy, from technology and biosecurity to global marketing. Meanwhile, Indonesia is undergoing a transformation process, with great potential if industrialisation strategies, farmer training, and modern technology are promoted evenly.

3.3. Competitiveness of Poultry Farming in Indonesia Compared to the United States

The competitiveness of poultry farming is greatly influenced by production efficiency. The United States has a competitive advantage because it has successfully reduced production costs through large-scale efficiency and the use of advanced technology. According to the USDA, the production cost of broiler chickens in the US is only around USD 0.75–0.80 per kilogram, while in Indonesia it reaches IDR 17,000–18,000 per kilogram or around USD 1.10–1.20, depending on the location and farming system. This is due to the vertically integrated market structure in the US and adequate logistics infrastructure support. As stated by Warr and Yusuf (2011), the competitiveness of the livestock sector in developing countries is often hampered by small scale and inefficient low technology.

Feed is the largest component of poultry production costs, accounting for 60–70% of total costs. In the United States, the availability of corn and soybeans as feed raw materials is abundant due to strong domestic production, making feed prices more stable. In contrast, Indonesia still relies on imports of raw materials such as soybeans and concentrates, causing feed prices to fluctuate significantly in line with the exchange rate of the rupiah. According to the Ministry of Agriculture, approximately 30–40% of Indonesia's livestock feed ingredients are still imported, leading to price instability and reducing the competitiveness of chicken prices in both domestic and export markets.

One of the challenges to Indonesia's chicken competitiveness in the global market is food quality and safety standards. Chicken products from the United States have met international standards such as HACCP (Hazard Analysis and Critical Control Points) and USDA Grade certification, which are key requirements for exports to developed countries. Meanwhile, in Indonesia, quality control systems are not yet uniform, especially in the smallholder farming sector. A report from the Food Security Agency (2023) states that '40% of poultry slaughterhouses in Indonesia do not meet NKV (Veterinary Control Number) standards,' which is a major obstacle to improving competitiveness in the international market.

The United States has made poultry a major export commodity, with a global distribution network and strong diplomatic trade support. USDA data shows that over 16% of US chicken production is exported, making the country the world's largest poultry exporter. On the other hand, Indonesia remains focused on meeting domestic market demand and faces export barriers such as import tariffs, non-tariff barriers, and low production volume consistency. According to research by Sutanto (2022) Indonesia has the potential to export poultry to Southeast Asia and the Middle East, but it needs to improve its competitiveness by strengthening its production and logistics systems.

4. CONCLUSIONS

This study concludes that the poultry farming sector in Indonesia has great potential for significant growth, driven primarily by increased domestic demand, government policy support, and ongoing technological advances. However, challenges such as technological limitations, feed price fluctuations, livestock diseases, and low integration between small farmers and large industries remain major obstacles that must be addressed immediately. Meanwhile, the United States has demonstrated success in developing an efficient, integrated, and high-tech poultry farming industry that can support both domestic and export market needs.

Through this comparative study, Indonesia can learn important lessons from the US poultry farming system, particularly in terms of production chain integration, management digitalisation, and operational efficiency. By benchmarking best practices in the US and strengthening the quality of human resources and poultry farming infrastructure, Indonesia has a great opportunity to improve the competitiveness of the national poultry industry towards a more modern, resilient, and sustainable system.

5. REFERENCES

Azizah, S., Shofiyyah, R., Firmansyah, F., Ramadhan, A. M. W., Aprylasari, D., & Irsyan, N. A. (2024). Tantangan & Peluang Peternakan Cagar Alam Besowo. *Yayasan Drestanta Pelita Indonesia*.

Davis, C. G., Harvey, D., Zahniser, S., Gale, F., & Liefert, W. (2013). Assessing the growth of US broiler and poultry meat exports. *A Report from the Economic Research Service. USDA*, 1–28.

Franzo, G., Legnardi, M., Faustini, G., Tucciarone, C. M., & Cecchinato, M. (2023). When everything becomes bigger: big data for big poultry production. *Animals*, *13*(11), 1804.

Goulding, K., Jarvis, S., & Whitmore, A. (2008). Optimizing nutrient management for farm systems. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *363*(1491), 667–680.

Shahbandeh, M. (2023). *Poultry industry in the United States-statistics and facts*.

Shikur, Z. H. (2023). Assessment of the relationships between livestock production policies implementation and knowledge integration for the promotion of food security in Ethiopia. *Cogent Food & Agriculture*, *9*(1), 2249038.

Soedjana, T. D. (1997). Penawaran, permintaan dan konsumsi produk peternakan di Indonesia. *Forum Penelitian Agro Ekonomi*, *15*(1–2), 17–34.

Sutanto, A. (2022). *Strategi Mengembangkan Agribisnis Dengan Canvas Model* (Vol. 1). UMMPress.

Warr, P., & Yusuf, A. A. (2011). Reducing Indonesia's deforestation-based greenhouse gas emissions. *Australian Journal of Agricultural and Resource Economics*, *55*(3), 297–321.

Zaheer, K. (2015). An updated review on chicken eggs: production, consumption, management aspects and nutritional benefits to human health. *Food and Nutrition Sciences*, *6*(13), 1208.