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Factors Affecting Production In Partnership-Based Broiler Farming Operations In Latambaga And Samaturu Subdistricts, Kolaka Regency

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Abstract

This study aims to analyze the factors influencing production in broiler chicken farms operating under a partnership model in Latambaga and Samaturu subdistricts, Kolaka Regency. The study was conducted from October 2025 to March 2026 using a census method involving 25 broiler chicken farmers. Data were collected through interviews, observations, and documentation, then analyzed using multiple linear regression. In this study, one broiler chicken rearing cycle lasted 35 days, from the time the day-old chicks (DOC) entered the coop until harvest. The results showed that, simultaneously, the variables of DOC, feed quantity, labor, coop area, medication use, and duration of farming had a significant effect on broiler chicken production. Partially, feed intake and medication use had a significant effect on broiler chicken production, whereas DOC, house area, labor, and rearing duration did not have a significant effect on broiler chicken production.

Keywords: ***Broiler chickens, production factors, broiler chicken production, partnership models, poultry farming***

INTRODUCTION

One of the livestock commodities experiencing rapid growth is *broiler* chickens. Relatively high public demand for chicken meat, more affordable prices compared to other sources of animal protein, and a relatively short production cycle have made the broiler chicken industry one of the most promising agribusiness subsectors. However, the success of a broiler chicken business is not determined solely by rearing practices but also depends heavily on comprehensive production management, including the management of production inputs,

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livestock health, and operational cost efficiency (Tamalluddin, 2014).

Broiler chicken production is influenced by various interrelated production factors, such as the number *of day-old chicks* (DOC), feed usage, labor, medications, vitamins, house area, and rearing management. The appropriate use of these production factors determines the level of productivity and efficiency of the farm (Rajiun, 2019). However, in practice, farmers still face various challenges, such as high feed costs, fluctuations in DOC prices, disease risks, and limited business management capabilities. These factors can lead to differences in production outcomes among farmers even when they use relatively similar rearing systems (Daryanto, 2019; Nabila and Akbar, 2023).

One of the most widely implemented strategies to address challenges in the broiler chicken industry is the core-plasma partnership model. This partnership system makes it easier for farmers to obtain production inputs such as day-old chicks (DOC), feed, and medications, as well as technical assistance from the core company. Meanwhile, plasma farmers are responsible for providing housing, labor, and carrying out chicken rearing activities in accordance with established standards. Through this partnership model, farmers are expected to improve the efficiency of their use of production factors and secure a market for their produce.

Southeast Sulawesi Province is one of the regions with potential for broiler chicken business development, including in Kolaka Regency. The growth of the broiler chicken business in this area is supported by increasing public interest in livestock farming, the availability of supporting resources, and cooperation between farmers and nucleus companies through partnership systems. Specifically in Latambaga and Samaturu subdistricts, the majority of broiler chicken farmers operate their businesses through partnerships with parent companies. Although they receive support in the form of production facilities and technical assistance, production levels among farmers still vary.

These differences in productivity are believed to be related to differences in farmers' ability to manage the production factors used during the rearing process. Some farmers still face challenges in feed management, disease control, labor, and the implementation of standard-compliant barn management. These conditions indicate that the success of the partnership model depends not only on the availability of inputs from the parent company but also on the effectiveness with which plasma farmers utilize production factors.

Several previous studies have examined the factors influencing broiler chicken production. Sumarno et al. (2023) found that day-old chicks (DOC), feed, vitamins, and mortality rates influenced broiler chicken production, whereas labor, vaccines, and medications did not show a significant effect. Saputra's (2020) study used the Cobb-Douglas production function

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approach and showed that the number of day-old chicks (DOC), feed, medications, vitamins, and labor all influence broiler chicken production. Meanwhile, Dedu et al. (2023) demonstrated that the core-satellite partnership model can provide benefits to farmers with an R/C ratio greater than one.

Although various studies have examined production factors in the broiler chicken industry, most of these studies have been conducted in regions with different business characteristics and have not specifically examined broiler chicken businesses operating under a partnership model in Latambaga and Samaturu subdistricts, Kolaka Regency. Furthermore, further research is needed to determine which production factors most significantly influence production outcomes in the partnership system, given that farmers have different management practices even though they receive production facilities from the parent company.

Given these conditions, this study is important to analyze the factors influencing broiler chicken production under the partnership model in Latambaga and Samaturu subdistricts, Kolaka Regency. The results of this study are expected to provide empirical information for farmers, parent companies, and local governments to improve the efficiency of production factor utilization and support the development of a productive and sustainable broiler chicken industry.

METHOD

This study employs a quantitative approach using a survey method to analyze the factors influencing broiler chicken production under a partnership model. The study was conducted in Latambaga and Samaturu subdistricts, Kolaka Regency, Southeast Sulawesi Province, from October 2025 to July 2026. The research locations were selected using a purposive sampling method, considering that both areas are development zones for partnership-based broiler chicken businesses, making them suitable for examining the relationship between the use of production factors and livestock production outcomes.

The population in this study consisted of all broiler chicken farmers operating under a partnership model in Latambaga and Samaturu subdistricts, totaling 25 farmers. Because the population size was relatively small, sampling was conducted using a census method, in which all members of the population were included as study respondents. Thus, the sample size used in this study was 25 broiler chicken farmers operating under a partnership model.

The data used in this study consists of quantitative data sourced from both primary and secondary data. Primary data was obtained directly from respondents through interviews using a structured questionnaire. The data collected included the number *of day-old chicks* (DOC), the

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amount of feed, labor, coop area, medication use, rearing duration, and broiler chicken production. Secondary data was obtained from relevant agencies such as the Central Statistics Agency (BPS), the Kolaka Regency Livestock Service, and various scientific literature relevant to the study.

Data collection was conducted through interviews, observations, and documentation. Interviews were conducted with respondent farmers to obtain information regarding the use of production factors and production output. Observations were conducted by directly examining the conditions of the coops, the rearing systems, and the operations of the broiler chicken farms. Documentation involved gathering supporting data from various agencies and literature sources related to the study.

Data analysis was conducted using multiple linear regression to determine the effect of production factors on broiler chicken production. The analytical model used is based on the Cobb-Douglas production function transformed into natural logarithmic form (ln), namely:

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln X_4 + \beta_5 \ln X_5 + \beta_6 \ln X_6 + e$$

Notes:

ln = Natural logarithm

Y = Broiler chicken production (kg)

β_0 = Constant

$\beta_1 - \beta_6$ = Regression coefficients for each independent variable

X_1 = Number of day-old chicks (heads)

X_2 = Amount of feed (kg)

X_3 = Labor (HOK)

X_4 = Pen area (m^2)

X_5 = Medications (mg)

X_6 = Duration of rearing (years)

ε = *Error* (disturbance factor)

Model testing was conducted using statistical tests to determine the simultaneous and partial effects of the independent variables on broiler chicken production. Data analysis was performed using statistical software.

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RESULTS AND DISCUSSION

Factors Affecting *Broiler* Farm Production

The factors influencing production in broiler chicken farming are various variables that play a role in determining the level of production achieved by farmers. In broiler farming under a partnership model, production success is not determined by a single factor alone, but rather results from the interaction of several production factors, such as the number *of day-old chicks* (DOC), feed, labor, coop area, and the use of medications. Each of these factors contributes differently to supporting chicken growth and achieving optimal production outcomes. Therefore, analyzing these factors is essential to understanding the extent to which each variable influences broiler chicken production levels.

Table 1. Factors Affecting the Production of *Broiler* Farms Operated by Broiler Farmers in the Latambaga and Samaturu Subdistricts of Kolaka Regency in 2026

Variable	Number of Respondents (People)	Percentage (%)
DOC		
> 7,900 chicks	5	20
7,500–7,900	11	44
< 7,500 birds	9	36
Feed Consumption		
< 15,000 kg	9	36
15,000 – 20,000 kg	11	44
> 20,000 kg	5	20
Workers' Day		
105 days	12	48
140 days	6	24
175 days	7	28
Enclosure Area		
< 500 m^2	6	24
500–750 m^2	12	48
> 750 m^2	7	28
Medication Use		
< 900 mg	8	32
900–1,300 mg	11	44

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> 1,300 mg	6	24
Duration of Farming		
4 years	8	32
5 years	11	44
6 years	6	24
Total	25	100

1. Use of *Day-Old Chicks* (DOC)

Based on Table 1, the use of *Day-Old Chicks* (DOC) by broiler chicken farmers in Latambaga and Samaturu subdistricts in 2026 was divided into three categories: fewer than 7,500 chicks, 7,500–7,900 chicks, and more than 7,900 chicks. Most respondents fell into the 7,500–7,900-bird DOC usage category, comprising 11 farmers (44%). Meanwhile, 9 farmers (36%) used fewer than 7,500 DOCs, while only 5 farmers (20%) used more than 7,900 DOCs. The predominance of DOC usage in the 7,500–7,900-bird range indicates that most farmers have adjusted their flock size to match barn capacity, management capabilities, and the production standards established under the partnership model.

Variations in DOC usage among farmers are influenced by differences in business capacity, house area, management capabilities, and the partner company's policies regarding DOC distribution. These findings align with those of Ezra et al. (2025), who noted that DOC usage in broiler chicken operations still varies due to differences in business scale, input prices, and farmers' capital capacity. Rianzani et al. (2021) also explain that partnership-based broiler chicken operations in Indonesia are still dominated by small- to medium- -scale farmers, resulting in differences in production capacity and input usage. However, in this study, DOC usage was relatively more concentrated within a specific range, indicating uniformity in business capacity due to the implementation of a partnership system between farmers and the parent company.

2. Feed Consumption

Based on Table 1, feed consumption by broiler chicken farmers in Latambaga and Samaturu subdistricts, Kolaka Regency, in 2026 was divided into three categories: less than 15,000 kg, 15,000–20,000 kg, and more than 20,000 kg. Most respondents fell into the 15,000–20,000 kg feed consumption category, comprising 11 farmers (44%), followed by the less than 15,000 kg category with 9 farmers (36%), and the more than 20,000 kg category with 5 farmers (20%). The predominance of feed consumption within this range indicates that most farmers have adjusted feed requirements to match the number of day-old chicks (DOCs), house capacity,

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and the chickens' nutritional needs during the rearing period. Meanwhile, differences in feed consumption among farmers are influenced by the scale of their operations and the number of chickens raised; the larger the flock, the higher the feed requirements.

Variations in feed consumption in broiler chicken operations align with the research by Amam and Harsita (2024), which states that feed consumption is influenced by the scale of the operation and the rearing system implemented by farmers. Additionally, Shodiq et al. (2024) explain that feed efficiency is also influenced by the quality of day-old chicks (DOC), housing density, and rearing management. However, the results of this study indicate that farmers' feed usage is relatively concentrated within a specific range, suggesting uniformity in the management of production inputs due to the implementation of a partnership system between farmers and the parent company.

3. Labor

Based on Table 1, labor usage in broiler chicken farming operations in Latambaga and Samaturu subdistricts, Kolaka Regency, in 2026—measured in Person-Days (PD)—is divided into three categories: 105 PD, 140 PD, and 175 PD. Most respondents used 105 HOK, specifically 12 farmers (48%), while 7 farmers (28%) used 175 HOK and 6 farmers (24%) used 140 HOK. The predominance of 105 HOK labor usage indicates that most farmers have adjusted their labor force to meet operational maintenance needs, such as feeding and watering, cleaning the coops, monitoring chicken health, and harvesting activities.

Differences in labor use among farmers are influenced by the number of chickens raised, coop size, and the division of labor during a production cycle. Farmers with larger flocks tend to require more labor to ensure all maintenance activities run optimally. Conversely, farmers with smaller-scale operations can carry out maintenance activities with fewer workers. This indicates that labor requirements in the broiler chicken industry are closely related to the scale of the operation and the intensity of the management practices implemented by each farmer.

4. Coop Area

Based on Table 1, the area of broiler chicken farm facilities in Latambaga and Samaturu subdistricts, Kolaka Regency, in 2026 is divided into three categories: less than 500 m^2, 500–750 m^2, and more than 750 m^2. Most respondents had coop areas in the 500–750 m^2 category, namely 12 farmers (48%), while 7 farmers (28%) had coop areas larger than 750 m^2 and 6 farmers (24%) had coop areas smaller than 500 m^2. The dominance of these barn size categories indicates that most farmers have adjusted their barn capacity to match the number of day-old chicks (DOCs) raised and the standard stocking density for chickens in the partnership system. An

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appropriate barn size plays a crucial role in supporting air circulation, providing space for the chickens to move, and ensuring optimal rearing conditions.

Differences in coop size among farmers are influenced by land availability, investment capacity, and the number of day-old chicks (DOC) allocated by the partner company. These findings align with the research by Shodiq et al. (2024), which states that coop size is one of the key factors in determining broiler chicken production capacity, particularly in partnership systems that implement specific technical standards. Susanto and Nursita (2024) also explain that limited coop area can act as a constraint on business scale expansion; however, partnership systems can ensure uniformity in coop usage through the parent company's rearing standards. This was evident in the present study, where the majority of farmers utilized coops in the medium-sized category, aligned with their production needs.

5. Use of Medications

Based on Table 1, the use of medications in broiler chicken farming operations in Latambaga and Samaturu subdistricts, Kolaka Regency, in 2026 was divided into three categories: less than 900 mg, 900–1,300 mg, and more than 1,300 mg. Most respondents used medications in the 900–1,300 mg range—11 farmers (44%)—followed by 8 farmers (32%) using less than 900 mg, and 6 farmers (24%) using more than 1,300 mg. The predominance of medication use within this range indicates that most farmers have implemented medication administration in accordance with the health needs of the livestock and maintenance standards within the partnership system. The amount of medication used is influenced by the chicken population size, the health status of the livestock, and the disease prevention programs implemented during a production cycle.

Variations in medication use among farmers are related to differences in rearing conditions, housing density, and the implementation of biosecurity management. These results align with the study by Ismail et al. (2019), which states that medication use in broiler chickens is influenced by the health status of the flock and management practices, while the partnership system tends to make medication use more controlled through technical standards set by the parent company. Additionally, Sari and Pratama (2024) explain that good housing management can reduce the risk of disease, thereby making medication use more efficient. These conditions align with the results of this study, which show that the majority of farmers maintain a relatively moderate level of medication use, reflecting a fairly stable health status of the livestock throughout the rearing process.

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6. Duration of Farming

Based on Table 1, the duration of broiler chicken farming in Latambaga and Samaturu subdistricts, Kolaka Regency, in 2026 was divided into three experience categories: 4 years, 5 years, and 6 years. Most respondents had 5 years of experience, namely 11 farmers (44%), followed by 8 farmers (32%) with 4 years of experience, and 6 farmers (24%) with 6 years of experience. The predominance of experience within this range indicates that most farmers have sufficient experience in running a broiler chicken business, particularly in the areas of husbandry management, livestock health control, and production management.

Farming experience is one of the key factors that can influence a farmer's ability to make decisions and manage production factors effectively. Farmers with more experience tend to have better knowledge when dealing with technical issues during rearing, such as feed management, disease control, and housing management. Overall, the respondents in this study had 4–6 years of farming experience, indicating that most farmers already possess sufficient skills and understanding to operate a broiler chicken business through a partnership system.

Table 2. *Broiler* Chicken Production in Latambaga and Samaturu Subdistricts, Kolaka Regency, in 2026

Description	Harvest (birds)
Highest	7,700
Lowest	2,320
Average Production	5,135

Based on Table 2, broiler chicken production in Latambaga and Samaturu subdistricts, Kolaka Regency, over a single rearing period (35 days) showed variation among farmers, with the highest production at 7,700 birds, the lowest at 2,320 birds, and an average production of 5,135 birds. These differences in production indicate variations in farmers' ability to manage their operations, which are influenced by the use of production factors such as the number of day-old chicks (DOC), feed, labor, coop area, medications, and farming experience. The average production achieved indicates that most farmers were able to attain a fairly good level of production over a single rearing period.

Variations in production among farmers also reflect differences in the implementation of rearing management practices, such as feed management, livestock health control, housing conditions, and chicken mortality rates. Although all farmers operate under a partnership system with the same operational standards set by the parent company, production outcomes still vary

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because they are influenced by each farmer's ability to optimize the available production factors. This is consistent with Amam's (2022) study, which states that broiler chicken production is influenced by a combination of production inputs—particularly day-old chicks (DOC), feed, and rearing management—making operational efficiency a critical factor in determining production success.

Multiple Linear Regression Analysis

The factors affecting *broiler* chicken production were analyzed using a multiple linear regression model. This model was used to determine the effect of each independent variable—namely, the number of *day-old chicks* (DOC), feed, labor (HOK), coop area, use of medications, and duration of farming—on the dependent variable, namely *broiler* chicken production. Multiple linear regression analysis also aims to examine the direction of the relationship and the magnitude of the influence of each production factor—both simultaneously and individually—on the production levels achieved by farmers.

The use of a multiple linear regression model in this study allowed the researchers to identify which factors most significantly influence *broiler* chicken production in the Latambaga and Samaturu subdistricts of Kolaka Regency. Thus, the results of this analysis are expected to provide a clearer picture of the contribution of each production factor to improving *broiler* farming yields under the partnership system. The results of data analysis using multiple linear regression are presented in Table 3

Table 3. Multiple Linear Regression *Output*

No.	Source of Variation	Coefficient	t-Statistic	Sig
1	C	-7.670	-0.370 (ts)	0.187
2	DOC	-0.070	-0.100 (ts)	0.922
3	Feed	0.711	6.453 (***)	0.000
4	HOK	0.100	0.630 (ts)	0.537
5	Cage Area	0.093	0.695 (ts)	0.495
6	Medications	0.360	2.737 (**)	0.014
7	Duration of Farming	0.250	1.655 (ts)	0.115

Note: ***= significant at 1%; **= significant at 5%; *= significant at 10%; ts= not significant

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Based on the results of the multiple linear regression analysis in Table 3, the effects of each production factor on the output of *broiler* farming businesses operating under a partnership model can be explained as follows:

1. **Constant (C)**

The constant (C) value is -7.670 with a calculated t-value of -0.370 and a significance level of 0.187, which is greater than α = 0.05. This indicates that the constant does not have a significant effect on the regression model. A negative constant value ( ) indicates that if all independent variables—namely, DOC, feed, HOK, coop area, medications, and farming duration—are held constant or set to zero, *broiler* farm production tends to decrease by 7.670 units. However, because it is not significant, this constant value has no real effect on production.

2. **DOC (X_1)**

The results of the significance test indicate that the DOC variable does not have a significant effect on broiler chicken production, with a regression coefficient of -0.070, a t-value of -0.100, and a significance level of 0.922 (> α = 0.10). A negative coefficient indicates that a 1% increase in DOC use tends to reduce production by 0.070%, but this effect is not statistically significant. This suggests that the amount of DOC used is not yet a major factor determining broiler chicken production at the study site. These results are consistent with studies by Ismoyowati and Sugiarto (2016) and Yulianti et al. (2024), which state that DOC does not always have a significant effect on final production because production outcomes are more heavily influenced by other factors such as feed and rearing management.

3. **Feed (X_2)**

The test results show that the feed variable has a highly significant effect on broiler chicken production, with a regression coefficient of 0.711, a t-value of 6.453, and a significance level of 0.000 (< α = 0.01). This coefficient value indicates that every 1% increase in feed intake will increase production by 0.711%, assuming all other variables remain constant. This demonstrates that feed is the dominant production factor in determining broiler chicken production increases, as it serves as the primary source of nutrients to support the chickens' growth and weight gain. These results are consistent with those of Wahyudi et al. (2021) and Iskandar (2019), who stated that optimal feed quality and quantity influence the productivity and production efficiency of broiler chickens.

4. **HOK (X_3)**

The results of the significance test indicate that the Working Days (HOK) variable does not have a significant effect on broiler chicken production, with a regression coefficient of 0.100, a t-value of 0.630, and a significance level of 0.537 (> α = 0.10). A positive coefficient indicates

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that a 1% increase in labor use tends to increase production by 0.100%, but this effect is not statistically significant. This suggests that additional labor is not yet a major factor in increasing broiler chicken production because the production process is more heavily influenced by other factors such as feed, day-old chicks (DOC), and rearing management. These results are consistent with Ismoyowati and Sugiarto (2016), who stated that labor does not always have a significant effect on broiler chicken production.

5. Cage Area (X_4)

The test results show that the pen area variable does not have a significant effect on broiler chicken production, with a regression coefficient of 0.093, a t-value of 0.695, and a significance level of 0.495 (> α = 0.10). A positive coefficient indicates that a 1% increase in pen area tends to increase production by 0.093%, but this effect is not statistically significant. This suggests that pen area is not yet a major factor in determining increases in broiler chicken production, as production success is more influenced by stocking density, rearing management, feed, and pen environment management. These results are consistent with Woro et al. (2019), who stated that a larger pen area does not directly increase productivity if it is not supported by optimal stocking density and rearing management.

6. Medications (X_5)

The results of the significance test indicate that the medication variable has a significant effect on broiler chicken production, with a regression coefficient of 0.360, a t-value of 2.737, and a significance level of 0.014 (< α = 0.05). This coefficient value indicates that a 1% increase in medication use will increase production by 0.360%, assuming all other variables remain constant. This suggests that the appropriate use of medications plays a role in maintaining chicken health, reducing the risk of disease, lowering mortality, and supporting increased production. These results are consistent with Yendri et al. (2021), who stated that the appropriate administration of vitamins, supplements, and medications can improve broiler chicken performance by enhancing livestock health and increasing body weight.

7. Length of Time Raising Chickens (X_6)

The results of the significance test indicate that the variable “length of farming experience” does not have a significant effect on broiler chicken production, with a regression coefficient of 0.250, a t-value of 1.655, and a significance level of 0.115 (> α = 0.10). A positive coefficient indicates that a 1% increase in farming experience tends to increase production by 0.250%, but this effect is not statistically significant. This suggests that the duration of farming experience is not yet a major factor in determining production increases in partnership-based broiler chicken operations. These results are consistent with a study by Prastyo and Kartika

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(2017), which stated that farming experience has a positive but insignificant effect on broiler chicken production. This suggests that the core company's standard operating procedures mean that differences in experience among farmers do not significantly affect production, as technical factors such as feed, day-old chick (DOC) quality, livestock health, and rearing management are more critical to production success.

CONCLUSION

Based on the results of this study on the factors influencing broiler chicken production in partnership-based farming operations in Latambaga and Samaturu subdistricts, Kolaka Regency, it can be concluded that, taken together, the variables *Day-Old Chicks* (DOC), feed, labor (HOK), coop area, medications, and length of farming experience have a significant effect on broiler chicken production. The regression model used has a coefficient of determination *(R^2)* of 0.937, indicating that 93.7% of the variation in broiler chicken production can be explained by these six variables, while the remaining 6.3% is influenced by other factors outside the research model, such as rearing management, weather, or seasonal factors.

Based on the results of the partial tests, it was found that the feed and medication variables had a positive and significant effect on broiler chicken production. Conversely, the variables of day-old chicks (DOC), labor (HOK), coop area, and duration of farming did not have a significant effect on broiler chicken production. These findings indicate that in broiler chicken farming under a partnership model, increased production is primarily influenced by the optimal use of feed and the appropriate administration of medications to maintain livestock health; thus, these two factors are the most critical determinants in boosting broiler chicken production in Latambaga and Samaturu subdistricts, Kolaka Regency.

Based on the research results, broiler chicken farmers in Latambaga and Samaturu subdistricts, Kolaka Regency, are advised to improve the management of production factors—particularly feed utilization, coop area, medication, and husbandry management—to optimize business productivity. For the government and relevant parties, support in the form of technical assistance and the strengthening of partnership systems is needed to improve the efficiency of poultry farming operations. In addition, future research is recommended to include other variables such as husbandry management, coop environmental conditions, chicken mortality rates, and the application of poultry farming technologies so that the study of factors affecting broiler chicken production becomes more comprehensive.

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