# FORECASTING ANALYSIS OF CHICKEN MEAT PRODUCTION AND CONSUMPTION (BROILER) IN NORTH SUMATRA PROVINCE

**Febry Hardian**

Agribusiness Study Program

Faculty of Agriculture, University of North Sumatra, Medan 20155, Indonesia

**febryhardian87@gmail.com**

## *Abstract*

*This study aims to analyze the production and consumption of broiler meat in North Sumatra Province with forecasting analysis using the SPSS program application. The method of determining the area used is purposive area sampling. The data used in this study are secondary data obtained from the Central Statistics Agency and the Department of Animal Husbandry and Food Security, North Sumatra Province. The results showed that in 2006-2015 in North Sumatra Province, broiler chicken meat production experienced a positive trend and for broiler chicken meat consumption also experienced a positive trend. In 2006-2015 in North Sumatra Province, broiler meat consumption was greater than broiler meat production in North Sumatra Province. For the years 2016-2025 in North Sumatra Province, it shows that the results of forecasting analysis of broiler meat production have a negative trend and the results of forecasting analysis of broiler meat consumption experience a negative trend which decreases with not too significant differences between the results of forecasting analysis of chicken meat production and consumption. broilers in North Sumatra Province.*

Keywords:Analysis of forecasting, trend, production and consumption of broiler meat.

## 1. Introduction

Livestock is part of the agricultural sub-sector that has a very large opportunity to be developed and plays a very important role in providing food needs, especially animal protein. The community's need for livestock products will increase every year in line with population growth and along with increasing public awareness of the importance of nutrition that is useful for improving the quality of life.

Along with the increasing number of people in Indonesia, the need for foodstuffs also increases, including foodstuffs of animal origin, especially meat. Provision of food in the form of meat for the community in sufficient quantities with good quality can increase income for farmers in the national economic system. To be able to achieve this target, the role of chicken as a source of animal protein can be relied upon because chicken is one of the national assets that contributes to the social and economic life of the community.

Broiler chicken is a type of chicken resulting from the cultivation of animal husbandry technology which has the characteristic of fast growth, as a producer of meat with low feed conversion and is ready to be slaughtered at the age of 28-45 days. In raising chickens, it is necessary to pay attention to, among others, the provision of balanced chicken feed and the appropriate temperature of the chicken coop.

Broiler chicken farming business can not be separated from several obstacles faced. These obstacles are quite complex obstacles in running a business. The obstacle in question is the high level of risk faced. The risks faced in this livestock business are disease, feed, medicines, vaccines, and non-optimal labor that can affect broiler meat production.

As one of the leading commodities in the livestock sector, chicken has prospects for continuous development. Various efforts have been made by farmers to increase their

competitiveness. The development of chicken as one of the leading livestock is also supported by the distribution of this livestock commodity in various islands or provinces throughout Indonesia.

The main purpose of forecasting is to make decision makers and policy makers understand the uncertainty of the future. So that the uncertainties and risks that may arise can be considered when they make plans or decisions that are oriented towards the future. By forecasting, planners and decision makers will be able to consider a wider range of strategic alternatives than without forecasting. Thus, various strategic and action plans can be developed to deal with various possibilities that may occur in the future (Sugiarto and Harijono, 2000).

According to Makridakis (1999), there are two main things that must be considered in the process of making accurate and useful forecasts. The first is the collection of relevant data in the form of information that can produce accurate forecasts. The second is the selection of the right forecasting technique that will utilize the data information obtained as optimally as possible.

## 2. Research methods

Determination of the research location by using the purposive method or intentionally. This research was conducted in North Sumatra Province which consists of 25 regencies and 8 cities with the consideration that North Sumatra Province is included as a center of livestock production under study and has a fairly large population.

The data used in this study is time series data with a range of 2006-2015 which was analyzed with the help of the SPSS (Statistical Package for Social Science) program and in the form of secondary data.

The data collected in this study used secondary data. In this study, the secondary data sources were the Food Security and Livestock Services of North Sumatra Province and the Central Statistics Agency of North Sumatra Province.

For the identification of the first problem, descriptive analysis is used in the form of presenting time series data with graphs or pictures and explanations of the data in the 2006-2015 period obtained according to actual conditions. To identify the second problem, to determine the forecasting of broiler meat production and consumption in North Sumatra Province for 2016-2025, a Forecasting analysis was carried out through Trends (Long-Term Motion) using the Least Squares Method (the least squares method) through the SPSS program using Regression. Simple Linear.

## 3. Results and Discussion

### 3.1 Forecasting Analysis of Chicken Meat Production and Consumption (Broiler) North Sumatra Province 2016-2025.

### 3.1.1 Forecasting Analysis of Chicken Meat Production (Broiler) North Sumatra Province 2016-2025

Forecasting analysis of broiler meat production in North Sumatra Province in 2016-2025 was obtained by using Trend (Long-Term Motion) using the Least Squares Method (the least squares method) through the SPSS program using Simple Linear Regression, using Provincial broiler meat production data. North Sumatra in 2006-2015, obtained the trend equation:

$$Qi = 43,754,401 - 533,777x.$$

Table 1. Total Forecasting of Chicken Meat Production (Broiler) North Sumatra Province 2016-2025

| Tahun | Produksi Daging Ayam Broiler (Ton) |
|---|---|
| 2016 | 37.882,85 |
| 2017 | 36.815,30 |
| 2018 | 35.747,74 |
| 2019 | 34.680,19 |
| 2020 | 33.612,63 |
| 2021 | 32.545,08 |
| 2022 | 31.477,53 |
| 2023 | 30.409,97 |
| 2024 | 29.342,42 |
| 2025 | 28.274,86 |

Source: Food Security Service and North Sumatra Animal Husbandry Service processed, 2018.

Based on Table 1 . from the results of forecasting broiler chicken meat production in 2016-2025 annually decreased by -533,777 tons. Where in 2016 forecasting broiler chicken meat production is estimated at 37,882.85 tons and is estimated in 2025 that is 28,274.86 tons.

### 3.1.2 Forecasting Analysis of Consumption of Chicken (Broiler) North Sumatra Province 2016-2025.

Forecasting analysis of broiler meat consumption in North Sumatra Province in 2016-2025 was obtained through Trend (Long-Term Motion) using the Least Squares Method (least squares method) through the SPSS program using Simple Linear Regression, using data on broiler meat consumption in North Sumatra Province. 2006-2015, the trend equation is obtained:

$$Qi = 43,817,999 - 565,338x.$$

Table 2. Total Forecasting Consumption of Chicken (Broiler) North Sumatra Province 2016-2025

| Tahun | Konsumsi Daging Ayam Broiler (Ton) |
|---|---|
| 2016 | 37.559,28 |
| 2017 | 36.468,60 |
| 2018 | 35.337,92 |
| 2019 | 34.207,25 |
| 2020 | 33.076,57 |
| 2021 | 31.945,90 |
| 2022 | 30.815,22 |
| 2023 | 29.684,54 |
| 2024 | 28.553,87 |
| 2025 | 27.423,19 |

Source: Department of Food Security and Department of Animal Husbandry of North Sumatra processed, 2018

Based on Table 2, the results of forecasting broiler meat consumption in 2016-2025 each year decreased by -565.338 tons. Where in 2016 forecasting consumption of broiler meat is 37,559.28 tons and in 2025 it is 27,423.19 tons.

To see the conditions of production and consumption of broiler meat in North Sumatra Province in 2016-2025, it can be seen in table 3 by combining the amount of broiler meat production with the amount of broiler meat consumption that has been obtained previously.

Table 3. Production and Consumption of North Sumatran Broilers (Broiler) in 2006-2025.

| Tahun | Produksi Daging Ayam Broiler (Ton) | Konsumsi Daging Ayam Broiler (Ton) |
|---|---|---|
| 2006 | 39.054,85 | 40.079,87 |
| 2007 | 50.359,93 | 50.310,73 |
| 2008 | 50.380,07 | 50.343,34 |
| 2009 | 51.654,69 | 51.668,70 |
| 2010 | 46.385,91 | 46.346,46 |
| 2011 | 47.050,56 | 47.041,90 |
| 2012 | 35.168,26 | 35.152,96 |
| 2013 | 37.835,60 | 37.713,44 |
| 2014 | 38.751,75 | 38.684,85 |
| 2015 | 40.902,39 | 40.837,74 |
| 2016 | 37.882,85 | 37.559,28 |
| 2017 | 36.815,30 | 36.468,60 |
| 2018 | 35.747,74 | 35.337,92 |
| 2019 | 34.680,19 | 34.207,25 |
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| 2021 | 32.545,08 | 31.945,90 |
| 2022 | 31.477,53 | 30.815,22 |
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Source: Department of Food Security and Department of Animal Husbandry of North Sumatra processed, 2018

Based on Table 3. it can be seen that, in 2016-2025 production continued to decline but could meet the consumption needs of broiler chicken. This situation is caused by disease, declining feed quality because raw materials are still imported, making prices more expensive, the provision of medicines, vaccines and labor is not optimal so that broiler meat production continues to decline and makes broiler meat prices higher when compared to livestock. other chickens such as organic chicken and free-range chicken. This makes people prefer to consume organic chicken meat and free-range chicken meat because the prices are cheaper and healthier.

To increase the production of alternative broiler meat that the government can do, one of which is the seriousness of the North Sumatran government in increasing broiler meat production. One of them is by increasing the number of broiler chickens quickly either from artificial insemination or by buying imported broiler chickens which are expected to increase broiler meat production, and also improve the quality of raw materials for making broiler chicken feed. With the increase in the number of broiler chickens, it means that the government must also increase the workforce, facilities and infrastructure, and maintain intensive broiler chickens. So the government must invest in broiler chickens in order to achieve high broiler chicken meat production. The government must also conduct socialization to broiler chicken farmers so that they can carry out good maintenance so that broiler chicken meat production is high. The land of North Sumatra which has the potential to be used as a broiler farm must be utilized because the climate is very supportive. If the production of broiler chicken meat can be fulfilled without having to import, of course the price of broiler meat, which so far according to the community is expensive, will become cheaper because of the surplus broiler meat production so that people don't have to spend a lot of money to consume broiler chicken. That way the consumption of broiler chicken meat will continue to increase and people's nutrition will be fulfilled and make Indonesian children healthy and smart.

## 4.  Conclusion

For the years 2016-2025 in North Sumatra Province, it shows that forecasting of broiler meat production has a negative trend and forecasting of broiler meat consumption has a negative trend with a not too significant difference between forecasting production and consumption of broiler meat in North Sumatra Province.

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