

# INTRODUCTION

## A. Background of Research

Indonesia is one of the tropical countries with great potential in agriculture, with abundant germ plasma and the second largest in the world after Brazil. Indonesia's biodiversity is diverse, supported by geographical conditions, sunlight intensity, rainfall intensity, soil species diversity, and introduced commodities evenly distributed throughout the year. Indonesia has a potential to develop various agricultural resources, such as land and a skilled workforce. It also has the necessary technology to take advantage of these resources.

However, this potential development is running with the problem development in agriculture, especially the farmer's problem. The increase of population requiring the agricultural sector to increase production until fulfill the food needs, the decreases of land area and land ownership getting narrower, the low level of productivity and farming income, the industrial revolution 4.0 is difficult for most farmers to apply, the increase of climate change, the struggling of credit application procedures, and the fluctuations of selling price. The farmer's problems that have been experienced is the lower productivity and lower farm income due to the prices selling at the farmer level often fluctuating even though the prices selling at the farmer level are lower than the prices selling at the consumer level in the market.

Ministry of Agriculture of the Republic of Indonesia (2020) stated that horticultural commodities that affect inflation and the national economy are chili and shallots. Shallots are a source of income and employment opportunities that contribute quite highly to the economic development of the region (Kementerian Pertanian, 2015).

According to Marendra and Puspitasari (2018), shallots are one of the horticultural commodities that have a role in determining the condition of the Indonesian national economy besides chili and it is included in the category of horticultural crop products that experience relatively high price fluctuations. Shallots are horticultural commodity is categorized a priority for the development of lowland vegetables in Indonesia and become a staple which is difficult to change

with other commodity, where the demand continues to increase even though shallots often experience considerable price fluctuations. This commodity has high economic value and a large market opportunity as the main cooking spice for household consumption, raw materials for the processing industry, and to fulfill export needs.

Based on existing data, shallot price fluctuations are not only in some regions but in most areas of West Sumatra which tend to fluctuate every year. The data below is the fluctuations of shallot prices in some district in Agam Regency as the examples in 2021-2022.

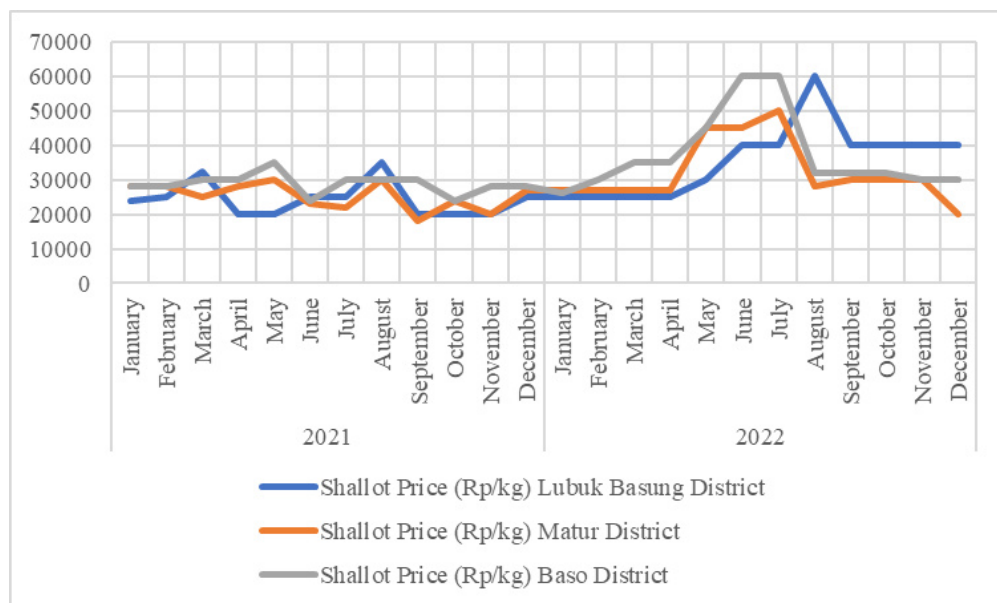


Figure 1 Shallot Price at Consumer-level in Agam Regency 2021-2022

Source: BPS Agam regency (2021) and BPS Agam regency (2022)

## B. Research Problem

Baso district is one of the districts located in Agam Regency, West Sumatra province with an area of 70.3 km<sup>2</sup> and a population of 37,242 people in 2021 based on data from the Central Statistics Organizations. With 4,475 people from of 6,163 people working as the farmers according to data from the Agricultural Extension Organizations of Baso District, it can be said that almost 12% of the population and 73% of the workers are farmers (Appendix 4). The rest is working as sellers, teachers, drivers, and other. Some of the leading agricultural commodities cultivated are rice, sweet potatoes, and vegetables including shallots.

Shallot farming in Baso District continues to experience an increase in production from 810 units in January 2019 to 1,430 units in August 2022. This increase was due to the community's interest in cultivating shallots, geographical conditions that were suitable for agricultural activities such as being in the lowlands with sufficient water availability, and high selling prices where if the selling price increased it would increase even higher. The average of consumer-level shallot price in Baso District according to data from the Central Statistics Organizations of Agam Regency in 2021 is IDR 28,750/kg. Meanwhile, the average price of shallots at the farmer level according to data from the Baso District Agricultural Extension Organizations is only Rp 13,417/kg. The prices of shallots at the producer and consumer level at Baso District in 2021 is showing in Appendix 1.

The highest and lowest price of shallots at the farmer level from January 2019 to August 2022 was IDR 45,000/kg and IDR 9,000/kg with an average price of IDR 18,591/kg. In the graphic, we can see the line have variants from a time to another times. The selling prices at the farmer level in periods of 2019 to 2022 is showing at Figure 1. below and the data is showing at Appendix 2.

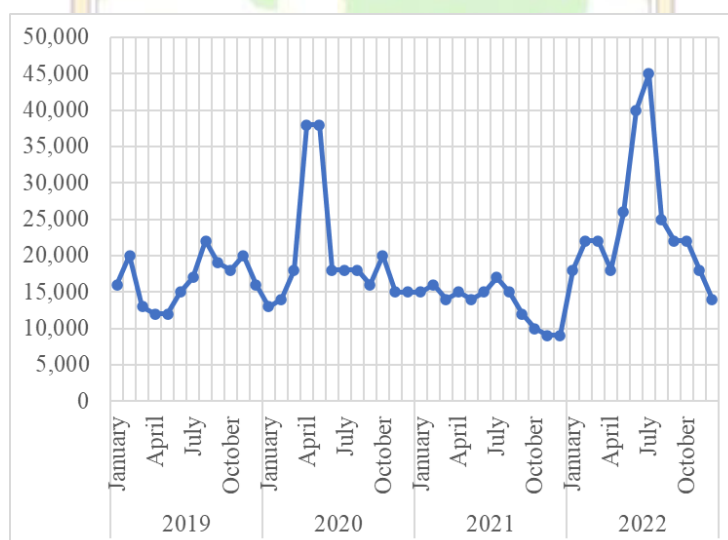


Figure 2 Farmers-Level Selling price of Shallot in Baso District for January 2019-December 2022

Source: Agricultural Extension Organization of Baso District(2019-2022)

Firmansyah and Kuntadi (2019) argue that the low income received by farmers due to fluctuating shallot prices and the absence of shallot price standards made by the government both during the harvest season and not harvesting. It will

influence farmers and consumer in making decisions. One of the solutions for the price fluctuation is forecast the price. But it is not all the result will be true with the actual, and it is possible the other factor can affect the actual data is different. One of the factors is how the farmer manage their farming. According to Alfiyah and Sugiarti (2023), when the harvest season occurs, the price of shallots tends to decrease, whereas if the production of shallots is decreased, the price on the market will increase. The problem with this research arises from the explanation above is:

1. What are the profile and characteristics of shallot farming in Baso District?
2. What is the best model of shallot price forecasting at the farmer level of Baso District?
3. What are the results of forecasting shallot prices at the farmer level of Baso District from January to December 2023?

#### **C. Objectives of Research**

Based on the formulation of the problem previously described, the objectives of this research are:

1. Describe the profile and characteristics of shallot farming in Baso District.
2. Identify and estimate the best model of shallot price forecasting at the farmer level of Baso District.
3. To forecast the shallots price at the farmer level of Baso District from January 2023 to December 2023.

#### **D. Benefits of Research**

This research is expected to provide benefits for related parties, namely:

1. For shallot farmers, this research can provide an information selling prices of shallots at farmers-level in Baso District.
2. For the government, this research can be a policy consideration for controlling the price of necessities such as shallots in Baso District.
3. For the community, this research can be a source of information about farming and food prices, especially the price of shallots in Baso District.
4. For the author, this research can be a tool to apply the knowledge gained from lectures and as material for research on the same topic in the future.