

# Factors Affecting the Increase in Chili Farming Production in Belawa Village, Belawa District, Wajo Regency

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## Abstract

**Purpose :** This study aims to review the factors influencing chili production in Belawa Village, Belawa District, Wajo Regency, and to examine the impact of production factors (farmer's age, experience, price, seed quality, and land area) on increasing chili production both partially and simultaneously.

**Methodology/Approach :** This research uses a descriptive quantitative approach. Data collection techniques include questionnaires, interviews, observation, and documentation. The data collected were analyzed using multiple linear regression analysis to identify the effect of each variable on chili production.

**Results/Findings:** The results show that: Farmer's age positively affects chili production. Farmer's experience does not positively affect chili production. Price of chili positively affects chili production. Seed quality positively affects chili production. Land area positively affects chili production. Simultaneously, all factors (age, experience, price, seed, and land area) positively affect chili production.

**Conclusion:** This study concludes that factors such as farmer's age, chili price, seed quality, and land area have a positive effect on increasing chili production in Belawa Village. However, farmer's experience does not significantly contribute to increasing chili production.

**Limitations:** This study is limited to Belawa Village, Belawa District, Wajo Regency, and does not consider external factors like climate change and government policies, which may affect the generalizability of the results.

**Contribution :** This research provides new insights into the impact of production factors on chili farming outcomes in Belawa Village and can serve as a reference for the development of agricultural policies that better support chili farmers in increasing their production.

**Keywords:** *Chili Production, Production Factors, Production Increases*

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## 1. Introduction

Indonesia is the fourth-largest consumer of chili in the world due to the widespread use of chili in food preparation. According to the Central Bureau of Statistics (BPS), the chili production in Indonesia reached 1.51 million tons in 2020 (M. Sundari, Darsono, Sutrisno, & Antriandarti, 2021). This figure increased by 9.76% compared to the previous year, which was 1.37 million tons. The production of chili peppers in Indonesia has continued to rise over the past five years (Agustina, Fitrianto, & Indahwati, 2025). During the 2016-2020 period, the average annual increase in chili production was 13.6%. In 2020, the highest production of chili occurred in August, reaching 177.91 thousand tons,

while the lowest production was in February, at 86.31 thousand tons. Chili is a plant of the Genus *Capsicum*. Its fruit can be classified as either a vegetable or a spice, depending on its use. As a spice, hot chili peppers are very popular in Southeast Asia as a flavor enhancer for food. One of the chili-producing regions in Indonesia is South Sulawesi Province, particularly in Wajo Regency, Belawa Village, Belawa District (Nurhikmah, Rosada, & Hasan, 2019).

The author conducted an observation of chili farmers in Belawa Village, Belawa District, Wajo Regency. It was found that factors such as age, experience, price, seeds, and land area play a significant role in chili farming. These factors have an impact on the results of chili farming in Belawa Village, Belawa District, Wajo Regency (MT Sundari, Sutrisno, & Antriyandarti, 2021). Therefore, this study will examine how these factors influence the increase in chili production carried out by farmers in Belawa Village, Belawa District. The variables being studied include the farmer's age, experience, price, seed quality, and land area, and how these five factors affect the increase in chili production in Belawa Village, Belawa District, Wajo Regency (Banung, Yudiarini, Lestari, & Susanti, 2023).

The factors that can improve agricultural production include age, experience, price, seed quality, and land area (Abas, Noer, & Ifall, 2019). These variables are essential in increasing chili farming production in Belawa Village, where age refers to the age of the chili farmer, experience refers to how long the farmer has been managing chili farming, price refers to the value of chili farming production, seed quality refers to the quality of the chili seeds used by farmers, and land area refers to the size of the farmer's farming land (Marhaen, Kusmiadi, & Ropalia, 2023; Zubair, Suherman, & Darmawan, 2024). Therefore, the researcher is interested in conducting a study titled "Factors Affecting the Increase in Chili Farming Production in Belawa Village, Belawa District, Wajo Regency."

Chili farming is widely practiced in Belawa Village, Belawa District, Wajo Regency because chili is a key ingredient in cooking, highly favored by the community (M. Sundari et al., 2021). As a result, chili farming has become the main choice for the people of Belawa Village. The unproductive water flow in the rice fields has made farmers reluctant to engage in rice farming, leading them to prioritize chili farming as the main agricultural activity in their lands (Hirakawa, Masuyama, Sudiarta, Suprpta, & Shiotsu, 2024; Rahma, Haslindah, & Muis, 2025).

## **2. Literature Review**

### **2.1 Problem Formulation**

Does the factor of Age, Experience, Price, Seed Quality, and Land Area have an influence on increasing chili farming production in Belawa Village, Belawa District, Wajo Regency?

#### **1. Farmer's Age**

The age of farmers is often considered a factor influencing agricultural output because it relates to the experience and physical capacity of the farmer. Some studies indicate that older farmers tend to have more experience, although age also correlates with reduced physical capacity, which affects productivity. Burton (2014) revealed that demographic characteristics such as age influence farmers' environmental behaviors, including their sustainable agricultural practices. However, this factor is also influenced by other variables such as experience and farming tools quality.

#### **2. Farming Experience**

Farming experience is one of the variables frequently mentioned in studies on agricultural productivity. Abas et al. (2019) found that farming experience influences farmers' technical decisions and their adaptation to new technologies. In this study, although experience did not have a significant effect on chili production in Belawa, other literature, such as Zubair, (Marhaen et al., 2023; Zubair et al., 2024), shows that farmers' experience plays an important role in choosing more efficient cultivation methods and improving agricultural outcomes.

#### **3. Chili Price**

Chili price is an important factor that encourages farmers to increase their production. M. Sundari et al. (2021) noted that chili price fluctuations can influence farmers' decisions to enhance their farming activities, especially in terms of using higher-quality inputs and expanding land. (Marhaen et al., 2023; Zubair et al., 2024)) also found that favorable prices can increase farming intensity and

encourage the use of better inputs, which in turn boosts production yields.

#### 4. Seed Quality

Seed quality is a key factor in determining chili production. High-quality seeds can produce healthier plants that are more resistant to pests and diseases, and yield higher outputs. Rahma, Haslindah Rahma et al. (2025) stated that seed quality significantly affects agricultural success. M. Sundari et al. (2021) also emphasized the importance of selecting quality seeds to improve yields because good seeds lead to higher quantity and quality of chili.

#### 5. Land Area

Land area plays a major role in determining agricultural capacity. Sutanto, Ghazali, and Handayani (2018) stated that the larger the farming land, the greater the production potential, as long as it is properly managed. Hirakawa et al. (2024) added that in agriculture, particularly for crops like chili, effective land management can maximize yields and reduce the risk of loss.

### 2.2 Literature Conclusion

The factors affecting the increase in chili production in Belawa, Wajo Regency, include internal factors such as age, experience, price, seed quality, and land area. Some studies show that age and farming experience influence agricultural decision-making, but seed quality and chili price appear to be more significant in improving production outcomes. Land area also plays an important role in production capacity, and with good management, it can increase harvest yields. This literature review suggests that these factors should be managed comprehensively to enhance chili farming outcomes, while adapting to market changes and the evolving agricultural technologies.

### 2.3 Research Objectives and Benefits

1. The objective of this study is to determine whether the variables of experience, age, price, seed quality, and land area have a partial influence on increasing chili production in Belawa Village, Belawa District, Wajo Regency.
2. The objective of this study is to determine how the variables of experience, age, price, seed quality, and land area simultaneously influence the increase in chili production in Belawa Village, Belawa District, Wajo Regency

### 2.4 The benefits of this research are:

#### 1. For the Researcher

This research serves as a means to broaden knowledge and understanding regarding the influence of experience, age, price, seed quality, and land area on the increase in chili production in Belawa Village, Belawa District, Wajo Regency.

#### 2. For Academics

This research is expected to contribute to the development of theories regarding the influence of experience, age, price, seed quality, and land area on the increase in chili production.

## 3. Research Method

### 3.1 Time and Place

This research was conducted in Belawa Village, Belawa District, Wajo Regency, from September to November 2022.

### 3.2 Population and Sample

The determination of the population and sample in this study used purposive sampling. Purposive sampling is a technique for determining the sample based on certain considerations. The selection of a group of subjects in purposive sampling is based on specific characteristics that are considered to be closely related to the characteristics of the population that are already known. In other words, the sample units are linked and adjusted to certain criteria applied based on the research objectives or research problems (Akudugu, 2016).

Arikunto (2017) stated that the population is the entire subject of the research. If someone wants to study the entire population, the research is a population study. The objects within the population are studied, the results are analyzed, and the conclusions drawn are applicable to the entire population. The

population of chili farmers in Belawa Village is 270, and the data obtained comes from the Belawa Village office.

Arikunto (2017) also defines a sample as a part of the population that possesses certain characteristics. He states that if the subjects are fewer than 100, the entire population becomes the sample. However, if the subjects exceed 100, 10-15% or 15-25% of the population may be taken as the sample. Based on this definition, the sample calculation in this research is as follows:

$$\begin{aligned}n &= N \times 20\% \\n &= 270 \text{ people} \times 20\% \\n &= 54 \text{ people}\end{aligned}$$

Information

n = sampel

N = population

Thus, the sample used in this study consists of 54 chili farmers.

### 3.3 Data Analysis

The data analysis used in this research employs qualitative data analysis processed with a quantitative approach, which is used to analyze the human resources factors that significantly influence the interest in farming. The data analysis methods applied in this research include questionnaire data collection using a Likert scale, which is then processed with multiple linear regression analysis, T-test, and F-test.

## 4. Results and Discussion

### 4.1 Respondent Identity

The demographic characteristics of the respondents are classified into several criteria, including gender, age, and the last level of education attained by each respondent, as shown in the following table:

#### 4.1.1 Respondent Characteristics Based on Gender

The description of respondent characteristics based on gender can be seen in the following table:

Table 1. Respondent Characteristics Based on Gender

No	Gender	Amount	Percentage
1	Male	54	100%
2	Female	0	0%
Total		54	100%

Source: Primary Data Processed, 2023

As shown in Table 1, the respondents are 100% male and 0% female, which can be concluded that no female farmers are involved in chili farming, and only males are engaged in chili farming. This is because in Belawa Village, it is difficult for women to farm chili, as chili farming requires substantial physical effort, which makes it less effective for women to take on such tasks. Therefore, this job is mostly carried out by men, with women typically helping only during harvest time. Thus, most of the chili farmers in Belawa District are male.

#### 4.1.2 Respondent Characteristics Based on the Last Level of Education

The description of respondent characteristics based on the last level of education can be seen in the following table:

Table 2. Respondent Characteristics Based on the Last Level of Education

No	Education Level	Amount	Percentage
1	SD	12	22%
2	SMP	22	41%
3	SMA	20	37%
Total		54	100%

Source: Primary Data Processed, 2023

Based on the research results regarding the respondent's education level, as shown in Table 2, junior high school (Marinakou & Giousmpasoglou) education dominates with 41% of the respondents, followed by senior high school (SMA) education with 37%. The education level with the lowest percentage is elementary school (SD) at 22%. The dominance of SMP education is because, at that time, many people preferred to directly enter the agricultural workforce rather than continue their education, so most people in Belawa Village only completed up to junior high school. Karakteristik responden Umur.

#### 4.1.3 Respondent Characteristics Based on Age

The description of respondent characteristics based on age can be seen in the following table:

Table 3. Respondent Characteristics Based on Age

No	Age	Amount	Percentage
1	21-30	16	30%
2	31-40	14	26%
3	41-50	11	20%
4	50>	13	24%
Total		54	100%

Source: Primary Data Processed, 2023

The analysis indicates that age does not have a significant influence on chili production in Belawa District. Although younger farmers (21-30 years old) have the highest percentage, at 30%, this does not translate into a significant effect on production (Burton, 2014; Susanti, Listiana, & Widayat, 2016). Age might correlate with physical strength, but other factors, such as farming experience and external support, may have a more substantial impact on productivity (Ahmad, Canon, & Abdul, 2025). Moreover, in this particular region, age might not be as influential as other factors like seed quality and land area, which play a more direct role in determining the yield. Thus, the relationship between age and chili production does not appear to be strong enough to demonstrate a significant effect in this study (Setiyowati, Fatchiya, & Amanah, 2022).

Additionally, older farmers (40-50 years old or above) tend to have more experience, but this study shows that experience itself does not influence chili production significantly (Resmianto, Sambodo, & Mildaryani, 2025). This suggests that while age might influence a farmer's physical capacity or years of experience, it is the combination of practical farming knowledge, tools, and resources such as quality seeds and sufficient land that truly determines the production outcomes (Craig, Pardey, & Roseboom, 1997; Ramlan, Irmayani, & Nurhaeda, 2023; Vlek, 1990). Therefore, age by itself does not have a strong, significant influence on the increase in chili production in Belawa District (Marphy & Priminingtyas, 2019; Nurhaedah, Irmayani, Ruslang, & Jumrah, 2023).

#### 4.2 Multiple Linear Regression Test

The multiple linear regression test was conducted using SPSS 24. Below are the results of the multiple linear regression test:

Table 4. Multiple Linear Regression Output

Model	Unstandardized coefficients		T	SIG
	B	Std. Error		
(Constant)	0,434	0,335	1,295	0,202
Umur (X1)	0,356	0,142	2,503	0,003
Pengalaman (X2)	0,070	0,178	0,397	0,693
Harga (X3)	0,176	0,052	3,372	0,001
Bibit (X4)	0,598	0,175	3,423	0,001
Luas lahan (X5)	0,449	0,146	3,070	0,004

Source: Primary Data Processed, 2023

The model used to predict the equation is:

$$y = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + e$$

From the results of the multiple linear regression in Table 4, the following regression equation can be formulated:

$$Y = (0.434) + (-0.356) X_1 + (0.070) X_2 + (0.176) X_3 + (0.598) X_4 + (0.449) X_5 + e$$

Interpretation of the regression equation:

- a = The regression constant value of 0.434 shows the magnitude of the increase in chili production in Belawa District, which is 0.434. If all other variables (independent variables: Age, Experience, Price, Seed, and Land Area) are equal to zero or constant, this means that the increase in production is only 0.434 before considering other factors.
- B1 X1 = 0.356 This indicates a positive slope or positive coefficient for the age variable (X1). It can be interpreted that if age increases by one unit, the chili production in Belawa District will increase by -0.356 kg/h/harvest, assuming all other variables remain constant. This means that as age increases, the increase in chili production in Belawa District will also increase.
- B2 X2 = 0.070 This indicates a positive slope or positive coefficient for the experience variable (X2). It can be interpreted that if experience increases by one unit, the chili production in Belawa District will increase by 0.070 kg/h/harvest, assuming all other variables remain constant. This means that as experience increases, the increase in chili production in Belawa District will also increase.
- B3 X3 = 0.176 This indicates a positive slope or positive coefficient for the price variable (X3). It can be interpreted that if the price increases by one unit, the chili production in Belawa District will increase by 0.176 kg/h/harvest, assuming all other variables remain constant. This means that as the price increases, the increase in chili production in Belawa District will also increase.
- B4 X4 = 0.598 This indicates a positive slope or positive coefficient for the seed variable (X4). It can be interpreted that if the seed quality increases by one unit, the chili production in Belawa District will increase by 0.598 kg/h/harvest, assuming all other variables remain constant. This means that as seed quality increases, the increase in chili production in Belawa District will also increase.
- B5 X5 = 0.449 This indicates a positive slope or positive coefficient for the land area variable (X5). It can be interpreted that if the land area increases by one unit, the chili production in Belawa District will increase by 0.449 kg/h/harvest, assuming all other variables remain constant. This means that as land area increases, the increase in chili production in Belawa District will also increase.

### 4.3 Hypothesis Testing

T-Test and F-Test are two types of statistical tests used to evaluate the suitability of hypotheses with the research results. The T-test aims to determine whether there is a partial effect of the independent variables on the dependent variable, while the F-test aims to determine whether there is a simultaneous relationship between the independent variables and the dependent variable (Yudhistira, Suprpto, & Sulmartiwi, 2023).

#### 4.4 T-Test

The T-test is a statistical test used to test the truth or falsity of a hypothesis stating that there is no significant difference between the two sample means taken randomly from the same population (Riadi, Rohmah Nurazizah, Wakano, & Fadilah, 2023)

The T-test is used to show the effect of independent variables in the model on the dependent variable individually. This is meant to determine how much the independent variables influence the dependent variable. To show the individual effect of the independent variables on the dependent variable, we can also look at the significance value. The results of the hypothesis testing in this study are as follows:

Table 5. Summary of T-Test Results

Variable	T <sub>count</sub>	T <sub>table</sub>	Significance	Information
Age (X1)	2,503	2,010	0,003	Positive effect
Experience (X2)	0,397	2,010	0,693	No effect
Price (X3)	3,372	2,010	0,001	Positive effect
Seed (X4)	3,423	2,010	0,001	Positive effect
Area (X5)	3,070	2,010	0,004	Positive effect

Source: Primary Data Processed, 2023

Based on the number of respondents, which is 54 chili farmers, it is known that the degrees of freedom (df) = 48, so the T-table value is 2.010 at a significance level of 5%. If the T-calculated value > T-table or the significance value is < 0.05, then Ha is accepted, and H0 is rejected, and vice versa. Therefore, the results of the hypothesis testing are as follows:

##### 4.4.1 Hypothesis One

Hypothesis one states that there is a significant positive effect of the Age variable on chili production improvement. Based on the partial calculation, the regression coefficient (b1) is 0.356, and at a 5% significance level, the T-calculated value is 2.503 > 2.010, and the significance value is 0.003 < 0.05. Since the regression coefficient is positive, the first hypothesis, which states "The Age variable has a positive and significant effect on chili production improvement in Belawa District, Wajo Regency," is accepted, and H0 is rejected.

##### 4.4.2 Hypothesis Two

Hypothesis two states that there is no significant and positive effect of the Price variable on chili production improvement. Based on the partial calculation, the regression coefficient (b2) is 0.070. At a 5% significance level, the T-calculated value is 0.397 < 2.010, and the significance value is 0.693 > 0.05. Since the regression coefficient is not positive, the second hypothesis, which states "The Price variable does not have a positive and significant effect on chili production improvement in Belawa District, Wajo Regency," is rejected, and H0 is accepted.

##### 4.4.3 Hypothesis Three

Hypothesis three states that there is a significant positive effect of the Price variable on chili production improvement. Based on the partial calculation, the regression coefficient (b3) is 0.176. At a 5% significance level, the T-calculated value is 3.423 > 2.010, and the significance value is 0.001 < 0.05. Since the regression coefficient is positive, the third hypothesis, which states "The Price variable has a positive and significant effect on chili production improvement in Belawa District, Wajo Regency," is accepted, and H0 is rejected.

##### 4.4.4 Hypothesis Four

Hypothesis four states that there is a significant positive effect of the Seed variable on chili production improvement. Based on the partial calculation, the regression coefficient (b4) is 0.598. At a 5% significance level, the T-calculated value is 3.423 > 2.010, and the significance value is 0.001 < 0.05. Since the regression coefficient is positive, the fourth hypothesis, which states "The Seed variable has a positive and significant effect on chili production improvement in Belawa District, Wajo Regency,"

is accepted, and  $H_0$  is rejected.

#### 4.4.5 Hypothesis Five

Hypothesis five states that there is a significant positive effect of the Land Area variable on chili production improvement. Based on the partial calculation, the regression coefficient ( $b_5$ ) is 0.449. At a 5% significance level, the T-calculated value is  $3.070 > 2.010$ , and the significance value is  $0.004 < 0.05$ . Since the regression coefficient is positive, the fifth hypothesis, which states "The Land Area variable has a positive and significant effect on chili production improvement in Belawa District, Wajo Regency," is accepted, and  $H_0$  is rejected.

#### 4.4 Uji F

The F-test is conducted to determine the simultaneous effect of the independent variables on the dependent variable. This is done through regression analysis, and the F-value is compared to the F-table value. If the F-calculated value is greater than the F-table value, the independent variables are said to have a simultaneous effect on the dependent variable, supported by the significance value, where the significance value is smaller than 0.05 (Ghozali & Latan, 2015).

Table 6. F-Test Results

F-Calculated	F-Table	Significance Value	Significance Threshold
25,317	3,34	0.000	0,05

Source: Primary Data Processed, 2023

Hypothesis six states that there is a positive effect of Age, Experience, Price, Seed, and Land Area on chili production improvement in Belawa District, Wajo Regency. Based on the F-test results, the F-calculated value is 25.317, while the F-table value is 2.56. Since the F-calculated value is greater than the F-table value ( $25.317 > 3.34$ ), it can be concluded that  $H_0$  is rejected, and  $H_a$  is accepted. This means that the independent variables, namely Age (X1), Experience (X2), Price (X3), Seed (X4), and Land Area (X5), collectively have a significant effect on chili production improvement in Belawa District, Wajo Regency.

#### 4.5 Coefficient of Determination ( $R^2$ ) Test

The results of multiple regression testing show that the Adjusted R Square value obtained is 0.725, therefore the strength of the independent variable's influence is 72.5%, which affects the dependent variable, namely production increase. The remaining 27.5% is influenced by other variables outside the independent variable. According to Ghozali and Latan (2015) If the R value (R Square) = 0, then the relationship between the dependent variable and the independent variable is weak. Meanwhile, if the R value (R Square) = 1, then the relationship between the dependent variable and the independent variable is strong. Therefore, the closer the  $R^2$  value (R Square) is to 0, the weaker the relationship between the dependent variable and the independent variable, and vice versa, the closer the R value (R Square) is to 1, the stronger the relationship between the independent and dependent variables.

### 5. Conclusion and Suggestions

#### 5.1 Conclusion

Based on the results of the discussion and data analysis, the following conclusions can be drawn:

1. There is an influence of the variables Age, Experience, Price, Seed Quality, and Land Area on the increase in chili production in Belawa Village, Belawa District, Wajo Regency. This is shown by the coefficient of determination value ( $R^2$ ) of 0.725 or 72.5%. This coefficient of determination indicates that 72.5% of the increase in production can be explained by the variables Age, Experience, Price, Seed Quality, and Land Area, while the remaining 27.5% is explained by other variables not studied in this research.
2. Based on the T-test, the factors that influence the increase in chili production in Belawa Village, Belawa District, Wajo Regency are Age (X1), Price (X3), Seed Quality (X4), and Land Area (X5), with probability values of 0.003, 0.001, 0.001, and 0.004, all less than 0.05. However, Experience (X2) does not have a significant effect ( $0.693 > 0.05$ ).

## 5.2 Suggestions

The researcher suggests that the government needs to pay attention to the improvement of chili production in Belawa Village. Through community assistance, farmers can gain knowledge and skills in farming techniques to increase their profits, especially in improving production. Additionally, attention should be given to the Experience variable. Sometimes, methods or practices that have been proven effective over the years may no longer be effective or aligned with modern agricultural developments. While past experience is valuable, it does not always keep pace with changes in modern farming practices. Therefore, it is important for chili farmers to remain open to new ideas or methods that may differ from what they have previously learned or practiced. This does not mean disregarding past experience, but rather adapting to environmental, technological, or market changes that may require new approaches.

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