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# The Effect of Coffee Farming on the Socio-Economic Improvement of Farmers in Siempat Nempu District, Dairi Regency

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**Abstract.** This study aims to: 1) Determine the profile of coffee farming in Siempat Nempu District, Dairi Regency. 2) Determine the effect of coffee farming yields on the socioeconomic improvement of farmers in Siempat Nempu District, Dairi Regency. The sampling method used was purposive sampling of 30 people. The data collection techniques used were observation, interviews, and questionnaires. The data analysis techniques used descriptive analysis and multiple regression tests. The results of the study show that (1). Coffee farming activities are carried out by farmers with an average age of 42 years. The average level of formal education is 8 years. The average farming experience was 9 years. The average area of coffee plantations was 11 hectares. The average number of family members per farmer was 4 people. The average planting distance was 2 m x 2 m. (2). The results of the study show that there is an increase in the social and economic status of farmers caused by an increase in farming yields. Based on the partial t-test results: X1, X3, and X4 have a significant effect on Y. X4 is the most dominant variable with a p-value of 0.005. X2 is not significant, although its value is close to significant with a p-value of 0.055. The coefficient of determination (R2) test result is 54%, which means that the factors of pesticides (X1), planting distance (X2), fertilizer (X3), and labor (X4) affect agricultural yields (Y). The remaining 46% is influenced by other variables outside the scope of this study. The simultaneous test results show that the F value is 7.331 with a significance value of 0.000. Since the significance value is less than 0.05, it can be concluded that: Simultaneously, variables (X1) Pesticides, (X2) Planting Distance, (X3) Fertilizer, and (X4) Labor have a significant effect on variable (Y) Farming Yield. These four factors jointly affect Farming Yield (Y), but partially only the factors Pesticides (X1), Fertilizer (X3), and Labor (X4) have a significant effect.

**Keywords**: Coffee Farming Yield, Farming Profile, Socioeconomic Improvement

## 1 Introduction

Coffee is one of the plantation commodities that plays an important role in Indonesia's economic activities. This is because coffee has contributed significantly to the country's foreign exchange earnings as a non-oil and gas export. In addition, it provides employment and income for coffee farmers and other economic actors involved in farming, processing, and the marketing chain [1].

Dairi Regency is well-known as a coffee producer, as evidenced by the fact that almost all sub-districts in Dairi Regency cultivate coffee as a commodity crop. The types of coffee cultivated are Arabica and Robusta. In 2008, Dairi Regency became the largest coffee producer in North Sumatra, with a coffee plantation area of 9,955 hectares and a production of 2,882.40 tons (North Sumatra Provincial Plantation Service, 2008 in [2].

The following table shows Robusta Coffee Production per Sub-district in Dairi Regency for the years 2021-2024:

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**Table 1.** Robusta Coffee Production by Subdistrict in Dairi Regency for the Years 2021-2024

| No | District | Robusta Production (kg) | | | |
|---|---|---|---|---|---|
| | | **2021** | **2022** | **2023** | **2024** |
| 1. | Sidikalang | - | - | - | - |
| 2. | Sitinjo | - | - | - | - |
| 3. | Berampu | 2.5 | 81.0 | 71.6 | 71.6 |
| 4 | Parbuluan | - | - | 4.0 | 4.0 |
| 5. | Sumbul | 225.0 | 100.6 | 241.2 | 241.2 |
| 6. | Silahi Sabungan | - | - | 1.3 | 1.3 |
| 7 | Silima Pungga-pungga | 780.0 | 636.4 | 666.0 | 666.0 |
| 8 | Lae Parira | 360.3 | 242.8 | 339.0 | 344.0 |
| **9**. | **Siempat Nempu** | **531.5** | **324.4** | **424.0** | **424.0** |
| 10 | Siempat Nempu Hulu | 232.9 | 173.9 | 335.4 | 344.9 |
| 11 | Siempat Nempu Hilir | 342.6 | 119.4 | 175.5 | 175.5 |
| 12 | Three Lingga | 204.1 | 48.8 | 33.6 | 33.6 |
| 13 | Mount Sitember | 395.5 | 20.3 | 19.6 | 21.0 |
| 14 | Pegagan Hilir | 522.0 | 68.0 | 200.0 | 200 |
| 15 | Pinem Land | 284.1 | - | 10.5 | 10.5 |

Source: Dairi District BPS, 2025

Based on Table 2, it can be seen that Siempat Nempu Subdistrict is one of the subdistricts with the highest coffee production in Dairi Regency. Therefore, Siempat Nempu Subdistrict was selected as the location for this study. Siempat Nempu Subdistrict has an area of approximately 60.15 km², consisting of 13 villages, with a population of 21,184. Administratively, this subdistrict is bordered by: North: Siempat Nempu Hulu Subdistrict, South: Sidikalang Subdistrict, East: Sumbul Subdistrict, and West: Silima Pungga-Pungga Subdistrict. Its hilly geography and cool climate make this area suitable for agriculture, especially coffee cultivation.

Initial survey results show that the large profits from coffee farming have not led to a drastic improvement in the social and economic conditions of farmers in Siempat Nempu District. In terms of education, most coffee farmers living in Siempat Nempu Subdistrict have only completed elementary school. The low level of education among coffee farmers in Siempat Nempu Subdistrict means that they still lack the knowledge to innovate and use technology to manage their coffee crops optimally. Many people are still unable to enjoy the profits from coffee farming because farmers in Siempat Nempu Subdistrict have not been able to manage their coffee harvests themselves. Farmers usually sell their coffee to middlemen.

Based on the above problems, the author conducted research with the following objectives:

1. To determine the profile of coffee farming in Siempat Nempu District, Dairi Regency
2. To determine how coffee farming yields affect the socio-economic improvement of farmers in Siempat Nempu District, Dairi Regency

The benefits of this research are that it is expected to provide information and knowledge to readers about how coffee farming yields affect the socio-economic improvement of farmers in Siempat Nempu District, Dairi Regency, and serve as a reference for future researchers who wish to study the effect of coffee farming yields on the socio-economic improvement of farmers.

## 2 Research Method

### 2.1 Research Location and Time

The author conducted the research in Siempat Nempu District, Dairi Regency. Siempat Nempu District was deliberately chosen (purposive). Siempat Nempu District was chosen because it is one of the largest coffee-producing districts in Dairi Regency.

Siempat Nempu Subdistrict has potential natural resources, particularly fertile agricultural land, human resources with enthusiasm, hard work, and a long-standing farming culture. The data collection process in this study was conducted from February to June 2025.

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## 2.2 Sample Population and Sample Size

The population in this study consisted of coffee farmers living in Siempat Nempu Subdistrict, specifically in Buntu Raja and Jumantuang Villages, who were directly involved in coffee farming activities. The sample selection in this study was determined purposively, meaning that the samples were selected based on certain criteria set by the researcher. A sample of 30 coffee farmers was taken using the criteria of farmers who were already producing. This number was considered sufficient to provide the required information.

## 2.3 Data Collection Methods

Based on the data sources to be studied, the data is divided into two types: primary data, which is obtained directly from the original source without an intermediary, and secondary data, which is obtained not from the original source or person.

The primary data in this study was obtained from questionnaires distributed to coffee farmers and interviews with coffee farmers. The secondary data was obtained from literature studies and the Dairi Regency Central Statistics Agency.

Data collection in this study used data analysis techniques, including:

a. Observation
   This is an activity carried out for measurement, but observation here is interpreted more narrowly, namely observation using the sense of sight, which means not asking questions. Observation in this study is direct in nature by:
   1) Directly observing the daily activities of coffee farmers in Siempat Nempu District, Dairi Regency.
   2) Directly observing the condition of coffee plantations owned by coffee farmers
   3) Directly observing the social and economic conditions of coffee farmers
b. Questionnaire Method
   According to [3], in the questionnaire method, questions are arranged in question sentences with available answer options. The difference between research using the interview method and the questionnaire method is that in the interview method, the researcher comes directly face-to-face and interacts directly to obtain data from respondents, while in the questionnaire method, to obtain data, the researcher does not interact directly with respondents; to obtain the data, the researcher can use an intermediary.
c. Interview Method
   An interview is a form of direct interaction between the person conducting the research (researcher) and the person who will be the object of the research (respondent). The communication used by the researcher is verbal, in the form of direct questions and answers, in order to obtain valid data in accordance with the research objectives.

## 2.4 Data Analysis Method

The analysis method used in this study is descriptive quantitative analysis, which is carried out by analyzing the data by describing or depicting the collected data as it is, without intending to make conclusions that apply to the general public or generations [4]. The data presentation using this analysis technique is in the form of tables used to describe the farming profile. Quantitative analysis in this study is done using simple regression analysis. Simple regression analysis is used to determine whether or not there is an effect of coffee farming on the socio-economic improvement of farmers.

Multiple linear regression analysis is a linear relationship between two or more independent variables (X1, X2, Xn) and a dependent variable (Y). This analysis is used to determine the direction of the relationship between the independent variables and the dependent variable, whether each independent variable has a positive or negative relationship, and to predict the value of the dependent variable when the value of the independent variable increases or decreases. The data used is usually on an interval or ratio scale.

$$Y = a + b1X1 + b2X2 + b3X3 + b4X4 + e$$

Explanation:
Y = Dependent variable (Agricultural Yield)
X1 = Independent Variable (Pesticide Factor)
X2 = Independent variable (Planting distance factor)
X3 = Independent variable (Fertilizer factor)
X4 = Independent variable (Labor factor)
a = intercept (Y value when X = 0)
b = Regression Coefficient

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### 2.5 Validity Test

Validity is an index that shows whether a measuring instrument truly measures what it is intended to measure. The higher the validity of an instrument, the more accurate it is in measuring data. Validity testing is important to ensure that the questions asked do not produce data that deviates from the intended variable description

### 2.6 Reliability Test

Reliability, or dependability, is the consistency of a series of measurements or a series of measuring instruments. This can be in the form of measurements from the same measuring instrument (test with retest) that will give the same results, or for more subjective measurements, whether two assessors give similar scores (inter-rater reliability). Reliability is not the same as validity. This means that reliable measurements will measure consistently, but not necessarily measure what they are supposed to measure. In research, reliability is the extent to which measurements from a test remain consistent after being repeated on subjects and under the same conditions. Research is considered reliable if it provides consistent results for the same measurement. It is not reliable if repeated measurements provide different results.

## 3 Results and Discussion

### 3.1 Coffee Farming Profile

Farmer identity describes the characteristics of farmers that can influence the management of their farming businesses. For example, a farmer's age can affect their ability to work on their farm, and a farmer's level of education can also influence their perspective or behavior in adopting new technologies [5].

In general, a person's age will affect the success of a business. Farmers who are of productive age will be more intensive in managing their farms than those who are older. This is partly due to the physical condition of farmers of productive age, which is generally better, coupled with a stronger desire to advance their farms. The level of education of farmers as heads of households can determine their success in farming. In general, the higher the level of education of farmers, the higher their acceptance of new technology, which in turn increases their motivation to improve productivity and increase family income. [5].

**Table 2.** Farming Profile

| No | Respondent Characteristics | Description |
|---|---|---|
| 1 | Number of Farmers | 30 people |
| 2 | Average Age | 42 years |
| 3 | Average Education | 8 years |
| 4 | Average farming experience | 9 years |
| | Average Land Area | |
| 5 | Average Number of Family | 11 Rante |
| 6 | Members | 4 people |
| | Average Planting Distance | |
| 7 | | 2 m x 2 m |

Source: Processed primary data, 2025

Based on Table 2, the average age of farmers is 42 years. This result indicates that coffee farmers in the research location are farmers of productive age. According to the North Sumatra Central Statistics Agency (2025), the productive age category for the workforce is 15-64 years.

The age of farmers is one of the factors related to their ability to change their farming practices. Younger farmers are generally quicker to adopt new innovations and are more responsive to environmental changes that affect their farming practices, but they are relatively less experienced than older farmers. As farmers age, their work capacity tends to decline, which can ultimately affect production and income in farming. Therefore, the age of farmers is a factor that influences the cultivation of Robusta coffee [6].

Based on the average education level of farmers in the research location, it is 8 years. This result illustrates the low level of education of coffee farmers in the research location. According to [7], there is a positive influence of formal education on farmer behavior. The results of this study show that a high level of formal education encourages farmers to take more risks in running their farms. Therefore, it can be concluded that the reason most coffee farmers take measures to avoid risks in their agricultural activities is their low level of education.

Based on the average farming experience of farmers in the research location, which is 9 years, this is considered quite good. The survey results show that farmers in the research location have quite high experience

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with an average farming experience of 8 years. This result is a good sign for the farmers' track record. The results of the research by [8] reinforce these research results, whereby farmers can learn from their experience of growing coffee, enabling them to mitigate all the risks they will face in running their farms.

Along with their high level of farming experience, farmers also have a high level of knowledge and access to information, which means that they are better prepared to face production risks and are more efficient in allocating their production factors. However, this high level of experience must be tested more thoroughly. Does it affect high production levels? This is because high experience may not be balanced with high levels of farmer adoption of available technology, so that production levels are not yet optimal [9].

Based on the average land area owned by farmers, which is 11 Rante (0.44 hectares), according to [10], land area can determine the level of income, standard of living, and degree of welfare of farming households. The larger the area of land cultivated, the greater the production costs incurred, which will affect farmers in obtaining the capital needed for production.

Based on the average number of family members, which is 4 people, not including the father and mother, the number of dependents will directly affect family expenses. The greater the number of dependents, the greater the expenses to meet their needs, and vice versa.

Based on the average planting distance made by farmers, which is 2 m x 2 m, according to [11], planting distance greatly affects plant growth and yield. This affects the dry weight of the plant, the root system, the amount of sunlight received, and the amount of nutrients absorbed from the soil. Proper planting distance increases yield, while improper planting distance decreases yield.

## 3.2 The Impact of Coffee Crop Yields on the Social and Economic Improvement of Farmers

### 3.2.1 Validity Test

The validity test in this study was processed using SPSS Statistics. The validity test was used to measure the validity of a questionnaire with a total score at a significance level of 5% and a sample size of 30 people. This test was conducted using Pearson's correlation between the score of each item and the total score of the variable. The validity criteria were determined based on a significance value (sig. 2-tailed) < 0.05 and a correlation coefficient value greater than the r-table (for N = 30 and $\alpha = 0.05$, r-table = 0.361). The validity test results can be seen in Tables 3 - 7 below:

**Table 3.** Results of the Pesticide Factor (X1) Validity Test

| Item | Calculated r | Sig. | Description |
|---|---|---|---|
| X1.1 | 0.858 | 0.000 | Valid |
| X1.2 | 0.849 | 0.000 | Valid |
| X1.3 | 0.665 | 0.000 | Valid |
| X1.4 | 0.823 | 0.000 | Valid |

Source: Primary data processed, 2025

**Table 4.** Results of the Validity Test of the Planting Distance Factor (X2)

| Item | r-count | Sig. | Description |
|---|---|---|---|
| X2.1 | 0.852 | 0.000 | Valid |
| X2.2 | 0.854 | 0.000 | Valid |
| X2.3 | 0.854 | 0.000 | Valid |
| X2.4 | 0.876 | 0.000 | Valid |

Source: Primary data processed, 2025

**Table 5.** Results of Fertilizer Factor Validity Test (X3)

| Item | Calculated r | Sig | Description |
|---|---|---|---|
| X2.1 | 0.852 | 0.000 | Valid |
| X2.2 | 0.854 | 0.000 | Valid |
| X2.3 | 0.854 | 0.000 | Valid |
| X2.4 | 0.876 | 0.000 | Valid |

Source: Primary data processed, 2025

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**Table 6.** Results of the Labor Factor (X4) Validity Test

| Item | Calculated r | Sig | Description |
|---|---|---|---|
| X4.1 | 0.901 | 0.000 | Valid |
| X4.2 | 0.934 | 0.000 | Valid |
| X4.3 | 0.894 | 0.000 | Valid |
| X4.4 | 0.915 | 0.000 | Valid |

Source: Primary data processed, 2025

**Table 7.** Results of the Validity Test of Farming Output (Y)

| Item | Calculated r | Sig | Description |
|---|---|---|---|
| Y1 | 0.849 | 0.000 | Valid |
| Y2 | 0.794 | 0.000 | Valid |
| Y3 | 0.833 | 0.000 | Valid |
| Y4 | 0.650 | 0.000 | Valid |
| Y5 | 0.857 | 0.000 | Valid |

Source: Primary data processed, 2025

All items in variables X1, X2, X3, X4, and Y have an r-count value > 0.5 and significance (Sig.) = 0.000, which means: All statement items are valid. Respondents understand each statement item well, and the items are relevant to the construct being measured

### 3.2.2 Reliability Test

The criteria for an instrument to be considered reliable is if the value obtained in the testing process using the Cronbach's alpha statistical test is > 0.60, it is considered reliable. Conversely, if Cronbach's alpha is < 0.60, it is considered unreliable. The reliability test results can be seen in Table 8 below:

**Table 8.** Reliability Test Results

| Variable | Cronbach's Alpha | Item | Description |
|---|---|---|---|
| X1 | 0.815 | 4 | Highly Reliable |
| X2 | 0.881 | 4 | Very Reliable |
| X3 | 0.863 | 4 | Very Reliable |
| X4 | 0.929 | 4 | Very Reliable |
| Y | 0.857 | 5 | Highly Reliable |

Source: Primary data processed, 2025

Reliability indicates the consistency of the instrument. Cronbach's Alpha values were used to assess reliability: X1: 0.815, X2: 0.881, X3: 0.863, X4: 0.929, and Y: 0.857

All values are > 0.8, which means: Each variable is highly reliable, or has a very good level of internal consistency. The instrument can be used repeatedly with stable results.

The research instrument is declared valid and highly reliable, making it suitable for data collection in this study.

### 3.2.3 T-test

The t-test was conducted to determine whether each independent variable (X1, X2, X3, X4) has a significant effect on the dependent variable (Y) partially, i.e., one by one.

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**Table 9.** T-test Results

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.878 | 3.191 | | 1,215 | .236 |
| | X1 | .323 | .127 | .365 | 2,534 | .018 |
| | X2 | .217 | .108 | .280 | 2,011 | .055 |
| | X3 | .269 | .117 | .335 | 2,294 | .030 |
| | X4 | .323 | .105 | .464 | 3,063 | .005 |

a. Dependent Variable: Y
Source: Processed primary data, 2025

The results of the t-test above show that:
X1 (Pesticides)
Coefficient value B = 0.323
t-value = 2.534
Significance (p-value) = 0.018
Interpretation: Since the p-value < 0.05, X1 has a significant effect on Y. Every 1-unit increase in X1 will increase Y by 0.323 units.
X2 (Planting Distance)
Coefficient value B = 0.217
t-value = 2.011
Significance (p-value) = 0.055
Interpretation: Since the p-value is greater than 0.05 (although close), X2 does not have a statistically significant effect on Y.
X3 (Fertilizer)
Coefficient value B = 0.269
t-value = 2.294
Significance (p-value) = 0.030
Interpretation: Because the p-value is < 0.05, X3 has a significant effect on Y. A 1-unit increase in X3 will increase Y by 0.269 units.
X4 (Labor)
Coefficient value B = 0.323 t-value = 3.063 Significance (p-value) = 0.005
Interpretation: Since the p-value < 0.05, X4 has a highly significant effect on Y and is the variable with the strongest effect (highest t and Beta values).
Conclusion of the partial t-test:
X1, X3, and X4 have a significant effect on Y. X4 is the most dominant variable. X2 is not significant, although its value is close to significant.

## 3.3 Determination Coefficient Test

**Table 10.** Coefficient of Determination Results

**Model Summary**

| Model | R | R Square | Adjusted R-Square | Standard Error of the Estimate |
|---|---|---|---|---|
| 1 | .735[a] | .540 | .466 | 1.29190 |

a. Predictors: (Constant), X4, X2, X1, X3
Source: Primary data processed, 2025

Based on the table of the Coefficient of Determination Test Results ($R^2$) above, it can be seen that the Adjusted R Square value in this study is 0.540 or 54%. This means that the influence of the Pesticide factor (X1), Planting Distance factor (X2), Fertilizer factor (X3), and Labor factor (X4) on Farming Yield (Y) is 54%, while the remaining 46% is influenced by other variables outside the scope of this study.

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### 3.3.1 F Test

To determine whether the independent variables (X1, X2, X3, and X4) simultaneously have a significant effect on the dependent variable (Y), an F test was conducted, the results of which are shown in the following table:

**Table 11.** F Test Results

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 48.942 | 4 | 12,235 | 7,331 | .000[b] |
| | Residual | 41,725 | 25 | 1,669 | | |
| | Total | 90,667 | 29 | | | |

a. Dependent Variable: Y
b. Predictors: (Constant), X4, X2, X1, X3
Source: Processed primary data, 2025

The analysis results show that the calculated F value is 7.331 with a significance value of 0.000. Since the significance value is less than 0.05, it can be concluded that:> Simultaneously, variables X1, X2, X3, and X4 have a significant effect on variable Y.

### 3.3.2 Multiple Linear Regression Test

**Table 12.** Multiple Linear Regression Test Results

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.878 | 3.191 | | 1,215 | .236 |
| | X1 | .323 | .127 | .365 | 2,534 | .018 |
| | X2 | .217 | .108 | .280 | 2,011 | .055 |
| | X3 | .269 | .117 | .335 | 2,294 | .030 |
| | X4 | .323 | .105 | .464 | 3,063 | .005 |

a. Dependent Variable: Y
Source: Primary data processed, 2025

Based on the regression analysis results, a multiple linear regression equation was obtained for Farming Yield (Y) against the factors of Pesticides (X1), Planting Distance (X2), Fertilizer (X3), and Labor (X4) as follows: Farming Yield = 3.878 + 0.323(Pesticides) + 0.217(Planting Distance) + 0.269(Fertilizer) + 0.323(Labor)

The regression equation above shows the relationship between the independent variables and the dependent variable partially. From this equation, it can be concluded that

If there is no influence from the factors of Pesticides, Planting Distance, Fertilizer, or Labor (variable value = 0), then the base value of Farming Yield is 3.878.

The Pesticide factor coefficient (0.323) means that every one-unit increase in the Pesticide factor will increase Farming Yield by 0.323 units, assuming other factors remain constant.

The coefficient for the Planting Distance factor (0.217) indicates that a one-unit increase in the Planting Distance factor will increase Farming Yield by 0.217 units. However, the significance value (0.055) is slightly above the 0.05 threshold, so the effect is not statistically significant.

The Fertilizer factor coefficient (0.269) shows that a one-unit increase in the Fertilizer factor will increase Farming Yield by 0.269 units.

The coefficient of the Labor factor (0.323) shows that each increase of one unit in the psychological factor will increase Farming Yield by 0.323 units. This factor is also the most dominant variable in influencing Farming Yield, as indicated by the highest Beta value (0.464) and the smallest significance value (0.005).

Thus, all four factors together influence Farming Output, but only the Pesticides, Fertilizer, and Capital factors have a significant effect when considered separately.

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# 4 Conclusion

Based on the research results and discussion obtained, the conclusions are as follows:

a. The agricultural profile of coffee farmers in Siempat Nempu Subdistrict, Dairi Regency: The coffee farming activities in this study were carried out by farmers of productive age, with an average age of 41-50 years. The average level of formal education is 6 years (elementary school). The average farming experience is > 8 years. The average area of coffee plantations is > 11 Rante. The average number of family members per farmer is 2-3 people. The average planting distance made by farmers is 2 m x 2 m.
b. The results of the study show that there is an increase in the social and economic conditions of farmers caused by an increase in agricultural yields. Based on the results of the t-test, it shows that the variable of coffee crop yields has a positive and significant effect on the improvement of farmers' socio-economic conditions. This can be seen from the significance value of 0.000, which is smaller than 0.05.
c. Based on the results of the F test, it shows that the agricultural yield of coffee plants has a simultaneous effect on the socio-economic improvement of farmers in Siempat Nempu Subdistrict, Dairi Regency. This can be seen from the data calculation results, which obtained a significant value of 0.000. This is because the significant value is smaller than 0.05.
d. The coefficient of determination (R Square) value is 0.453, which means that the influence of the coffee crop yield variable on the socio-economic improvement of farmers is 0.453 or 45.3 percent, while the remaining 54.7 percent is influenced by other factors.
e. Based on the results of simple linear regression analysis, there is a significant relationship between agricultural yields and the socio-economic improvement of farmers. The higher the agricultural yields, the higher the socio-economic improvement of coffee farmers.

## References

[1] N. Uswa and others, “The Effect of Socioeconomic Factors on the Income of Arabica Coffee Farms in Kendenan Village, Baraka District, Enrekang Regency,” 2023.
[2] Saing and B. Rohana, “Analysis of Income and Contribution of Arabica Coffee Farming to Total Farmer Family Income and Welfare Levels in Siempatnempu Hulu Subdistrict, Dairi Regency,” 2022.
[3] W. Gulo, *Research Methodology*. Jakarta: PT Grasindo, 2010.
[4] RirinAnggreniPulungan, “SKRIPSI Oleh : FAKULTAS PERTANIAN UNIVERSITAS MEDAN AREA MEDAN,” 2019.
[5] W. Ariyanti, “Robusta Coffee Farming in Tanggamus Regency: A Study of Agribusiness Development Strategies.” 2019.
[6] D. B. Ulandika, “Analysis of Robusta Coffee Farming in Sungai Medang Village, Air Hangat Timur District, Kerinci Regency, Jambi Province.” 2022.
[7] Herminingsih and Rokhani, “The Effect of Climate Change on the Behavior of Tobacco Farmers in Jember Regency,” *J. Math. Sci. Technol.*, vol. 15, no. 1, pp. 42–51, 2014.
[8] Amalina and others, “Analysis of the Efficiency of Production Input Use in Tobacco Farming in Eromoko District, Wonogiri Regency,” *AGRISTA*, vol. 8, no. 3, pp. 110–121, 2020.
[9] Lutfi and Baladina, “Analysis of Technical Efficiency in the Use of Agricultural Production Factors in Tobacco Farming,” *J. Agric. Econ. Agribus.*, vol. 2, no. 3, pp. 226–233, 2018.
[10] Rachmat, “Employment Opportunities and Prospects in Sugarcane Development in Java,” *Forum Penelit. Agro Ekon.*, vol. 9, no. 2–1, pp. 30–39, 1992.
[11] Indrayanti, “The Effect of Planting Distance and Seed Quantity on the Vegetative Growth of Young Corn.” 2010.