

# THE EFFECT OF AGE, EDUCATION AND LAND AREA ON CORN FARMING INCOME IN CIAMIS REGENCY

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**Abstract.** The study aims to determine the effect of age, education and land area on corn farming income in Ciamis Regency. The study was conducted in Panumbangan District, Ciamis Regency using a survey method. The sample size was 94 farmers taken from a population of 1,545 farmers. The effect of age, education, and land area on corn farming income in Ciamis Regency was analyzed using multiple linear regression. The results showed that age, education, and land area had a significant effect on corn farming income in Ciamis Regency, both simultaneously and partially.

**Keywords:** age; education; land area; income; corn farming

## 1 Introduction

The agricultural sector is an important sector in economic development in Indonesia [1]. The agricultural sector not only plays a role as a source of food for the population, but also as a provider of employment for the population [2].

One of the agricultural sector commodities is corn, which is one of the most important agricultural commodities and is related to large industries [3]. Corn is the second staple food after rice. In addition to being used as food, corn is also used as feed. The need for corn is increasing along with industrial growth [4].

Corn is one of the food crop commodities cultivated in Ciamis Regency. One of the areas that cultivates corn as its leading commodity is the agropolitan area in Ciamis Regenc. Agropolitan is an agricultural city or development in a particular area with an agricultural base [5].

Farming activities do not always produce maximum production, but there are obstacles and problems in the process that affect farm income. Respondent characteristics are said to be factors that influence decision making by farmers when doing farming [6]. Farmer characteristics are important in managing farms. Farmers who have good characteristics can easily solve problems and use every opportunity to increase their income [7]. The characteristics in this study consist of age, education, and land area.

Farmers who are of productive age tend to be physically strong in running their farms, so they have more courage in taking risks in implementing new innovations that have the potential to increase their farm income. Research [8] [9] [6] [10] shows that age has a positive and significant effect on farmer income.

Education level is the formal education taken by farmers. Increasing education will increase knowledge and a more advanced mindset, so that they tend to be more open in adopting innovation. Education will determine the ability of farmers to plan their farming activities to achieve the desired targets that affect farming income.

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Education is one of the main capitals in development, through education humans can think more systematically and critically in facing problems. Education has 2 emphases, namely formal and non-formal. Formal education is education whose activities are carried out in schools while non-formal education is education outside of school. The level of formal education can significantly affect a person's intelligence level which will later affect a person's ability to solve a problem and a person's personality will be formed to gradually and adjust to their environment [11].

Land area affects the amount of production obtained, where the wider the land managed by farmers, the higher the farmer's income. Research [11] [12] [7] [13] [9] shows that age has a positive and significant effect on farmer income [2].

This study was conducted with the aim of determining the effect of age, education, and land area on corn farming income in Ciamis Regency.

## 2 Research method

The research was conducted using a survey method [14]. The type of research used is quantitative research [14]. Panumbangan District was selected using purposive sampling. Farmers are grouped based on land area into three categories, namely: (1) Narrow land (<0.25 hectares), (2) Medium land (0.25-0.50 hectares), and (3) Large land (> 0.50 hectares).

The research population was 1,545 people consisting of 896 farmers with narrow land, 507 farmers with medium land, and 142 farmers with large land. The sample determination was carried out using the Slovin formula with a margin of error of 10%, so that a sample of 94 farmers was obtained. Farmer samples from each category of land area were taken proportionally so that a sample of 54 farmers with narrow land, 31 farmers with medium land, and 9 farmers with large land was obtained.

The influence of age, education, and land area on corn farming income in Ciamis regency was analyzed using multiple linear regression with the following equation:

$$\ln Y = a + \ln b_1 X_1 + \ln b_2 X_2 + \ln b_3 X_3$$

Where:

Y = Corn farming income (Rp/ha)

X<sub>1</sub> = Age (years)

X<sub>2</sub> = Education (years)

X<sub>3</sub> = Land area (hectares)

## 3 Results and discussion

### 3.1 Characteristics of farmers

The characteristics of farmers in this study consist of age, education, and land area as presented in table 1.

**Table 1.** Characteristics of farmers

| . Characteristic | Category           | Percentage |
|------------------|--------------------|------------|
| Age (year)       | 15 – 64            | 88.30      |
|                  | > 64               | 11.70      |
| Education        | Primary school     | 28.72      |
|                  | Junior high school | 25.53      |
|                  | Senior High School | 45.74      |
| Land (hectare)   | < 0.25             | 57.45      |
|                  | 0.25 – 0.5         | 32.98      |
|                  | > 0.5              | 9.57       |

The age of farmers is dominated (88.30%) by farmers who are of productive age (15-64 years). According to [11], productive age is the ideal age to work and have the ability to increase work productivity.

Farmers' education is dominated (45.74%) by farmers who have a high school education (12 years of formal education). According to [9], education influences the ability to think and analyze every effort so that farmers can run their farming business well and can obtain maximum income.

The area of land owned by farmers is dominated (57.45%) by farmers with a narrow land category (<0.25 hectares). According to [9], the area of agricultural land control is an important factor in the farming process where the wider the land, the higher the production produced so that the higher the farmer's income.

### 3.2 The Effect of Age, Education and Land Area on Corn Farming Income

Income can literally be defined as the remainder of the deduction of the value of receipts and costs incurred. Farmer income is one indicator to measure the success of farming [11]. The level of farmer welfare can be seen from the level of income received from their business [2].

Farmer characteristics affect production, productivity, and farmer income. Each farmer has different characteristics that cause differences in income in their farming business. Farmer characteristics affect farmers in receiving information that is expected to bring changes to farmer farming behavior so that it has an impact on farmer income from their farming business [11].

The effect of age, education, and land area on corn farming income in Ciamis Regency was analyzed using multiple linear regression as presented in table 2.

**Table 2.** The influence of age, education, and land area on corn farming income

| Variable            | Coefficient | Standard deviation | t-ratio  |
|---------------------|-------------|--------------------|----------|
| Constant            | 14.873      | 0.847              | 17.554*  |
| Age ( $X_1$ )       | 0.358       | 0.151              | 2.362**  |
| Education ( $X_2$ ) | 0.354       | 0.142              | 2.501**  |
| Land ( $X_3$ )      | 0.955       | 0.044              | -21.627* |
| $R^2$               | 0.889       |                    |          |
| F-ratio             | 240.277*    |                    |          |

Note: \* significant at  $\alpha$  0.01, \*\* significant at  $\alpha$  0.05

Testing the influence of age, education, and land area on corn farming income in Ciamis Regency simultaneously was carried out using the F test. The F-ratio value

of 240.277 indicates that age, education, and land area simultaneously affect corn farming income in Ciamis Regency. The coefficient of determination value of 0.889 indicates that the variation in changes in corn farming income in Ciamis Regency is influenced by 88.9% by variations in changes in variables in the model used in this study. While the remaining 11.1% is influenced by other variables outside the model. Age has a significant effect on corn farming income in Ciamis Regency. The results of this study are in accordance with the research of [6] [8] [9] [10]. Most of the farmers are of productive age and have a strong desire to learn to improve their knowledge and skills in corn cultivation so that productivity increases, which has an impact on increasing income.

Education has a significant effect on corn farming income in Ciamis Regency. The results of this study are in accordance with the research of [15] [16] [17] [18] [19]. Education is a process to change a person's knowledge, mindset and behavior. A person's educational attainment is one indicator that shows a person's intelligence and maturity in thinking and decision making [7].

The level of education affects the ability to think and analyze each business so that farmers can run their businesses well and can obtain maximum income. highly educated farmers will be relatively faster in implementing technology adoption. The level of education can change mindsets, better reasoning power. The higher the level of education, the better the way of thinking will be so that farmers will act more rationally in managing their businesses [11].

Farmer education is related to farmers' knowledge in making better decisions in their businesses. Educated farmers will choose better technology for their businesses [2]. Land area has a significant effect on corn farming income in Ciamis Regency. The results of this study are in accordance with the research of [20] [21] [16] [22] [23] [24] [25] [2]. The wider the land controlled, the greater the income obtained. The scale of the business will affect the amount of income that will be obtained, because the more land is managed, the greater the income that will be obtained by farmers [7].

The wider the land that is cultivated, the greater the production results that will ultimately increase farmers' income and vice versa, the narrower the land control, the smaller the production that will be produced, which will ultimately affect farmers' income. Therefore, one of the successes of farmers' income cannot be separated from land control [11].

The area of land owned is a factor that greatly influences the results that will be received by farmers, or in other words, the wider the land used, the greater the production results obtained [20]. On a larger scale, farmers can use efficient farming practices so that they can increase production output which has an impact on increasing income [23]. The wider the land owned by farmers, the more land can be planted so that farmers' income will increase [25].

## **4 Conclusion and recommendation**

Age, education, and land area have a significant effect on corn farming income in Ciamis Regency, both partially and simultaneously. Based on these conclusions, it is recommended that farmers of productive age be given non-formal education through extension activities so that there is an increase in knowledge and technical skills in corn cultivation which has an impact on increasing corn farming productivity and increasing farmer income.

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