



## The Strategy to Increase Farmers Income and Production of Coffee Cultivation Marketing in Buton

Wa Ode Al Zarliani<sup>1</sup>, & Muhamad Chairul Basrun Umanailo<sup>2</sup>

<sup>1</sup>Agribisnis, Fakultas Pertanian, Universitas Muhammadiyah Buton, Indonesia

<sup>2</sup>Agroteknologi, Fakultas Pertanian dan Kehutanan, Universitas Iqra Buru, Indonesia

### Abstract

The aim of this study is to determine the effect of land area, seeds, labor, fertilizers, pesticides and on coffee productivity. The population were all farmers who worked on coffee production, approximately around 470 people. Determination of the sample is done by simple random sampling method by taking 10% of the population, in order to obtain a total sample of 47 respondents. Furthermore, the data were tabulated and analyzed using multiple linear regression analysis techniques. The results showed that there is an effect of production factors simultaneously on productivity of coffee with an effect of 75.9% and the remaining 24.1% is influenced by other factors. Land significance value (X1) = 0.009, seeds (X2) = 0.040, Total labor (X3) = 0.981, Fertilizer (X4) = 0.013, pesticides X5 = 0.000. From these results, labor does not have a significant effect while land area, seeds, fertilizers, and pesticides have a significant effect on coffee productivity with the Regression equation  $Y = 1370.989 - 802.119 X_1 + 11.107 X_2 - 101 X_3 + 1.010 X_4 + 519.958 X_5 + e$ . The market of the coffee industry in Kaongkeongkea district consists of two types of trade flow, first, farmers to collectors to wholesalers then to exporters. Second, farmers directly to wholesalers and then to exporters.

**Keywords:** Influence; Production; Marketing; Improvement; coffee; Buton.

**How to Cite:** Zarliani, W.O. A. & Umanailo, M. C. B. (2023). The Strategy To Increase Farmers Income and Production of Coffee Cultivation Marketing in Buton. *Jurnal Ilmiah Magister Agribisnis*, 5(2) 2023: 49-62,



## INTRODUCTION

The development of the agricultural sector is very important in Indonesia's economic growth. It is because more than 55% of the Indonesian population works and carries out their activities in the agricultural sector and lives in rural areas. In this regard, the policies adopted in the implementation of the development of the agricultural sector emphasize more on aspects of empowerment, both empowerment of human resources and empowerment of natural resources. Although the economic growth of Indonesia has been shaken by several economic crisis, the impact in the agricultural sector was less severe compared to industrial sector (Saragih et al., 2019). Therefore, policies that advantage on domestic production, particularly agricultural sector is beneficial. Central Bureau of Statistics in (Taib and Hari 2019) reports that the level of education of the farmers is relatively low and the average age of farmers is getting older. This condition greatly affects the productivity of the agricultural sector. In addition, it appears that agriculture in Indonesia is dominated by farmers who are classified as peasants or subsistence farmers, namely farmers who have narrow land (less than 0.5 ha) and utilize most of their production for their own needs.

According to Sufriidson, in (D. M. Wambua, Gichimu, and Ndirangu 2021) there are two main groups that become obstacles in the development of farming, namely (1) factors belonging to the economic group and (2) factors belonging to the biological group. The first and second inhibiting groups are interrelated and influence each other but can be clearly separated. According to Soekartawi, in (D. Wambua et al. 2019) the separation of the two factors can be clearly explained, namely (1) Biological factors, such as agricultural land with the type and level of fertility, seeds, varieties, fertilizers, drugs, weeds and so on and (2) Factors socioeconomic conditions, such as production costs, pcoffeees, labor, farmer education, income levels, risks and uncertainties, institutions, availability of credit, and so on (Duaja, Kartika, and Johannes 2020). In addition, the problem faced by the agricultural sector in general in the industrialization era is the fact that there is a shift of labor from the agricultural sector to the non-agricultural sector (Aprianingsih 2018). This is because faster industrial growth requires more and more workers, so that labor in the agricultural sector is becoming scarce (Nugraha and Hasugian 2018). Given the differences in the physical, social, and economic environment, farmers face problems in the allocation of their resources (Iskandar et al. 2019). Actually, the role of the farmer is how to make decisions on the selection of existing resources in managing his farmland so that it can provide the maximum benefit, so that it will affect the income and efficiency of his farming business (Wambua et al. 2019).

The coffee bean planting sector is one of the agricultural sub-sectors that has a strategic role for the Indonesian nation because Indonesian coffee beans have world quality that is favored by foreign people and is a source of foreign exchange income (Wambua, Gichimu, and Ndirangu 2021). The coffee cultivation business has a large multi-functional role, and the success of its development will have a real impact on achieving economic resilience and farmers' welfare (Afolami and Ezebilo 2021). So far, the development of coffee production has been carried out through increased production, area expansion and farmers are also encouraged to increase their productivity, the implementation of which needs to be carried out in a planned and sustainable manner through intensification of quality improvement by implementing a coffee cultivation technology package through agricultural extension programs (Nainggolan & Aritonang 2012).

The productivity of coffee products is strongly influenced by natural resources and other production factors as well as the application of appropriate technology and labor Soekartawi, in (Taib and Hari 2019) Buton Regerency is one of the coffee-producing areas in Southeast Sulawesi Province. The location for planting coffee beans is concentrated in 3 sub-districts, namely Kaongkeongkea District with a harvested area of 103 hectares and a production yield of 91.40 tons, Mekar District with a harvested area of 1,138 hectares and a production yield of 1,621 tons, and Kalimbo District with a harvested area of 103 hectares and production of 40 tons Bps in (Zarliani

2021). When compared to 2019, coffee production in 2021 decreased by 2.79 tons BPS, in (Zarliani 2021) Data on the Development of Harvested Area, Production and Productivity of Buton District coffee in 2019-2021. Look at the following table.

**Table 1 Harvested Area, Production and Productivity of Coffee in Buton Regerency**

Year	Harvested Area (Ha)	Production (Ton)	Productivity (Kw/Ha)
2021	44	1. 652, 40	5, 45
2020	60	1. 214, 68	9, 65
2019	16	1. 364, 70	9, 00

Sources: BPS. Buton District

When the harvested area continues to decline, the average coffee production fluctuates, the cause of this fluctuation is the improper use of the land area production factor. The land factor is the most influential production factor in determining the level of coffee production. Production is also strongly influenced by the use of seed and fertilizer production factors on the amount of coffee production. Regular fertilization and adapted to the needs of the coffee production will be maximized, because with the use of land functions and supported by good fertilization and the use of superior seeds, quality production results will be created. Pasar Wajo District, viewed from the ecological aspect, Buton Regerency is a potential area for the development of coffee growing business, this can be observed from the coffee plant harvest area of. 2,138 hectares. (BPS Buton City, in (Zarliani, 2021). The productivity of coffee in Buton Regerency is still relatively low. In 20121 BPS reported that the coffee harvested area in Buton Regerency was 1,344 ha with a production of 2,652.40 tons, so that the productivity was only 4.54 tons/ha. This productivity is still below the national productivity which reached 4,999 Tons/Ha (BPS, in (Zarliani, 2021). The size of the productivity of coffee depends on the production factors used, including seeds, fertilizers, pesticides, irrigation, and labor.

Based on the description above, the focus of this research is how the influence of production factors on the productivity of coffee cultivation in Kaongkeongkea Village, Pasar Wajo District. Buton Regerency? The purpose of this study was to determine the effect of production factors on coffee productivity in Kaongkeongkea Village, Pasar Wajo District. Buton Regerency and the productivity, income and marketing strategy of coffee farmers.

**RESEARCH AND METHOD**

In this study, the population is farmers who carry out coffee planting business activities during the growing season. The total population in this study were 470 farmers. Given the large number of farmer populations to be studied, the researcher will only take part of the existing population by collecting samples. Based on the explanation above, the researcher took a sample of 10% from 470 farmers, namely 47 farmer respondents. The sample was determined by simple random sampling (Simple Random Sampling) as many as 47 people from the total population. The selected sample is representative of the entire existing population (Aprianingsih, 2018). The data is divided into 2, namely primary data and secondary data. Primary data is data obtained directly from reliable sources at the research site, namely by making direct observations to the object under study through interviews (interviews) to respondents/informants using previously prepared questionnaires. This is intended to obtain clear data or information regarding the object of this research. While secondary data is data obtained from various sources, such as literature and/or library books, archives/data on the object of research (Pasarwajo District office and Buton City Central Bureau of Statistics) as well as other references. Relevant to the object being studied or studied. Sources of data include people, literature, documents, and atmosphere (observation). The data analysis technique used in this study is multiple linear regression analysis with the following equation:

$$Y = a + x_1b_1 + b_2 x_2 + b_3x_3 + b_4 x_4 + b_5x_5 + e$$

Description

Y = Coffee Productivity (Kw/Ha)

X1 = Harvested Area (Ha).

X 2 = coffee beans

X3 = Workers

X4 = Fertilizer

X 5 = Pesticide

The F statistical test basically shows whether all the independent variables included in the model have a joint effect on the dependent variable. This means whether all explanatory variables simultaneously are explanatory variables that are significant or not significant to the dependent variable. Statistically the F test formulation is Gujarati, in (Duaja et al., 2020):

$$F = \frac{R^2/(k - 1)}{1 - R^2 (n - k)}$$

If the calculated  $F > F$  table at the 5% confidence level and a certain confidence level or significance probability value is less than 0.05 then the  $H_0$  is rejected, which means that the independent variables jointly affect the dependent variable. The t-statistical test is basically to show how much influence one explanatory variable individually has in influencing the dependent variable. Whether an independent variable is a significant or insignificant explanatory to the dependent variable. In statistics can be searched through the formula Gujarati, in (Duaja et al., 2020)

$$t = \frac{\beta_i}{Se(\beta_i)}$$

The description sees  $t =$  the value sought;  $\pi_i$  = regression coefficient and  $se =$  standard error of regression coefficient. If  $t$  count  $>$  Table at the 5% confidence level or the significance probability value is less than 0.05 (5% real level) then the  $H_0$  is rejected in other words, the independent variable has an effect on the dependent variable. Furthermore, the completion of this analysis using the SPSS program, so to assess the results of the regression is done by looking at the value of each coefficient from the output of the SPSS program.

## RESULTS

The identity of the respondent farmers referred to in this study is the identity of the farmer who is the supporter of success in carrying out coffee planting business activities. The identity of the respondent farmers described in the results of this study includes age, farming experience, education level, number of dependents in the family, area of arable land. For this reason, the results of this study will be described according to the farmers who are respondents, including:

### a. Age

Age is one of the factors that affect the ability of farmers to carry out farming activities and the readiness of farmers to accept new things. Age at productive age is the best period for farmers to accept new things, especially in the application of technology. Because at this young age, farmers generally have maximum participation in carrying out their farming activities. This is supported by (Iskandar et al., 2019) that young farmers are more dynamic, so they are more receptive to new things that are recommended. This is because young farmers are more dynamic and are more willing to take risks so that they can get new experiences that are valuable for the development of their farming activities in the future. Age can affect a person's physical ability, both in the way of thinking to solve any problems that arise exist or at work. Young people have higher abilities than old people. Older farmers generally have reduced ability to work and are more careful in accepting new recommendations in their business activities. This is because older farmers have matured in

thinking and acting and have had sufficient experience in farming, thus resulting in less dynamic and tend to be closed to new things that are recommended. This is in line with the statement Soeharjo & Patong in (Iskandar et al., 2019) which states that the age factor for farmers can affect their physical ability to work. The age grouping is based on the opinion of Soeharjo in (Afolami and Ezebilo, 2021) that the productive age ranges from 15-54 years and the non-productive age is above 55 years. Based on the results of research found in Kaongke-ongkea Village, it shows that the age of respondent farmers varies between 33 years to 71 years with an average age of 44 years. From the age data, when grouped by productive and non-productive age, from the total farmer respondents who have productive age (33-54 years) are 43 people or 91.5% and non-productive age (55-71 years) are 4 people. or 8.5%. This is explained in table 2 below.

**Table 2 Condition of Respondent Farmers Based on Productive and Non-Productive Age Grouping in Kaongkeongkea Village in 2021**

<b>Respondent's Age (Age)</b>	<b>Numbers (people)</b>	<b>Percentage (%)</b>
<b>33-54</b>	43	91,5
<b>55-71</b>	4	8,5
<b>Total</b>	47	100,00

Table 2 above shows that most of the respondent farmers are in the productive age group as many as 43 people (91.5%) and the remaining 4 people (8.5%) are in the non-productive age group. This condition shows that respondent farmers in Kaongkeongkea Village have the ability to work more optimally and think more forward so that farmers are expected to be able to produce maximum production.

**b. Education**

Education in general can influence the way of thinking. Farmers with higher education tend to be dynamic in the sense that they are always changing in the application of technology according to the times. Because farmers who have high education always think logically about something that was considered good in the past and it doesn't always apply but changes according to the development of environmental conditions. Adapting users and being selective to technological changes with higher education is expected to change the mindset of farmers towards a more rational and more responsive to information technology so that they can increase production and quality of production produced and can solve any problems faced during their farming activities. This is in line with the opinion expressed by Soeharjo in (Taib & Hari, 2019) that the ability of farmers to manage their farming is largely determined by the level of education, both formal and non-formal. The higher a farmer's education, the easier it is for him to accept, implement and develop new innovations in carrying out his farming activities which will ultimately have an impact on his farming activities. This is explained in table 3 below.

**Table 3. Education Level of Respondent Farmers in Kaongkeongkea Village in 2021**

<b>Level of education (respondent)</b>	<b>Numbers (People)</b>	<b>Percentage (%)</b>
<b>Finished SD</b>	15	31, 9
<b>Finished SMP</b>	17	36, 2
<b>Finished SMA</b>	13	27, 7
<b>Finished (S1)</b>	2	4, 2
<b>Total</b>	47	100,00

Based on the table above, that the education level of most respondent farmers is junior high school graduates, amounting to 17 people or 36.2%, elementary school graduates as many as 15 people or 31.9%, high school graduates as many as 13 people or 27.7% and the smallest are 2 graduates (S1) or 2.5%. This means that overall, the respondents have received formal education and when examined further based on the data, it shows a large desire from farmers in

Kaongkeongkea Village to continue their education to a higher level. This can be seen from the total number of people who continue their education to the junior high, high school and undergraduate levels, amounting to 32 people or 63%. This of course will affect the mindset of respondent farmers in terms of making decisions from various alternative decisions that must be taken in an effort to improve and develop lowland coffee farming carried out by farmers. In general, with a high level of education, they can easily accept new innovations, however, with the current conditions, it is necessary to carry out further education for all ages of farming communities in rural areas, both young and old because of the education they received in their younger years. Which was different from today's conditions, there have been many changes that must be adapted to today's natural conditions; therefore it is necessary to have assistance from agricultural extension workers to always accompany farmers in carrying out their farming activities and provide information about the development of new technologies for the advancement of their farming.

**c. Number of dependent family members**

The number of family responsibilities is one of the factors that influence economic activity and is one of the sources and assets in conducting and developing farming activities. The number of family dependents referred to in this study is the number of all members who live in one farming family and are part of the household consumption unit. The number of dependents in the family needs attention. This is because the number of family members is a resource that can be mobilized to assist farmers in carrying out their farming activities as well as the large number of dependents of the farmer's family will affect the activities of farmers in moving their farming business because with the large number of dependents the family will provide smooth farmer activities at productive age. In addition, the greater the number of dependents, the greater the number of needs that must be met by the head of the family, so that farmers are required to work harder to meet the needs of their family life. The number of dependents of the respondent's farming family. This is explained in table 4 below

**Tabel 4. Numbers of Family Responsibilities of Farmer's Respondents in Kaongkeongkea Village**

2021		
The Numbers of the Dependents (Person)	Numbers (Person)	Percentage (%)
2-9	14	29, 8
5-7	33	70, 2
<b>Total</b>	47	100,00

In Table 5 above, the number of dependents of the respondent farmer families in the research area ranges from 2-7 people, with an average of 5 people per respondent farmer. The number of respondent farmers who have family dependents of 2-4 people is 14 people or 29.8%, farmer respondents who have family dependents of 5-7 people are 33 people or 70.2%. This shows that most of the respondent farmers have a fairly large number of family dependents (5-7). The number of dependents of the family can be used as family workers who are willing to help whenever needed. The number of family members can have a positive value if they are willing to help farmers as the head of the family work to carry out their farming activities. This means that the existing family members are expected to assist farmers as the head of the family in managing their farming business as a source of labor. However, the success of farming is not only determined by the number of existing family members but is also determined by the activity and contribution that can be given, both in the form of advice and the energy that has been devoted to the progress and increase of the resulting production.

**d. Farming Experiences**

Farmers in developing farming activities certainly cannot be separated from the experience they have gone through. Farming experience is one of the important factors for respondent farmers in determining or making decisions in their farming activities. Experience is an educational process obtained from outside the school. Experience in farming will always bring changes to farmers in managing their farming affairs. A farmer with a lot of experience is expected to be able to determine a better alternative in relation to his farming productions. High experience can provide a useful lesson because farmers can learn from mistakes that have happened to them so that they can be used as guidelines in changing bad habits for the better in the future in farming. Farming experience can be said to be quite experienced if it has been in the field of work for 5 -10 years. While 10 years and over are categorized as experienced and less than 5 years are categorized as less experienced. This is explained in table 5 below

**Tabel 5. The Experience of the Farmer**

<b>Farming Experiences (Person)</b>	<b>Number (Orang)</b>	<b>Percentage (%)</b>
<b>5-10</b>	9	19
<b>&gt;10</b>	38	81
<b>Total</b>	47	100,00

In Table 5 above, all of the farmers have been doing farming activities for more than 5 years. Respondent farmers who have experience of 5-10 years are 9 people or 19% and farmers with experience above 10 years are 38 people or 81%. This situation illustrates that most of the farmers in Kaongke-ongkea Village are categorized as experienced in carrying out their farming activities. With this experience, it is hoped that farmers will be able to produce maximum coffee production because farmers in carrying out their farming activities can learn from previous experiences, can learn from the failures they have experienced so that in making decisions they will be more rational and do a lot of calculations. This is very helpful for farmers in analyzing and determining every decision to be taken.

**e. The area of arable land**

The area of arable land is one of the factors of production that determines the decision making of a farmer in carrying out farming activities. The area of arable land also determines the amount of production produced by farmers in the farming business they manage. The wider the arable land owned by the farmer, the freer the farmer is in determining and managing the land to be cultivated, in the sense that he is more flexible in determining what types of plants will be developed. The area of land owned by farmers also influences attitudes in determining the type of farming business and the technology that will be applied in carrying out their farming activities. Based on the results of the study obtained data on the area of land cultivated by respondent farmers varied. The land area of respondent farmers ranges from 0.5-2 Ha, with an average land area. 1.2 This is described in the table below.

**Table 6. The area of land cultivated by respondent farmers in Kaongkeongkea Village in 2021**

<b>Land Area (Ha)</b>	<b>Numbers (Person)</b>	<b>Percentage (%)</b>
<b>0,5-1,25</b>	34	72,35
<b>1,26-2</b>	13	27,67
<b>Total</b>	47	100,00

In Table 6 above, that most of the respondent farmers in Kaongkeongkea Village, amounting to 34 people or 72.35% have a land area of 0.25-1.25 Ha and 13 farmers or 27.65% have a land area of 1, 26–2. Based on the land data, when classified, it can be said that all respondent farmers have medium land area. This will certainly affect the resulting production, because the land managed by farmers is one of the important production factors in determining the number of

production facilities that will be used which will ultimately affect the ability to achieve the resulting output.

#### f. Productivity

Productivity is the result per unit area, labor, capital or other inputs. Outsiders tend to measure farm productivity according to total biomass, result of certain components and economic profit that often deeming it necessary to maximize yield per unit of land. Based on the results of research at the research location, data on productivity in the coffee business ranged from 1500–4000 Kg/Ha. With an average productivity of 2,687 Kg/Ha.

For more details about coffee productivity in Kaongke-ongkea Village, it is explained in the following table.

**Table 7. Coffee Productivity of Farmer Respondents in Kaongkeongkea Village in 2021**

Productivity (Kg/Ha)	Numbers (Person)	Percentage (%)
1.500-2.283	18	38,29
2.284-3.067	19	40,42
3.068-3.850	10	21,29
<b>Total</b>	<b>47</b>	<b>100,00</b>

In the table above, the respondent farmers who produce productivity between 1,500- 2,283 Kg/Ha are 18 people or 38.29%, farmers who produce productivity 2.284-3,067 Kg/Ha are 19 people or 40.42% and farmers who produce productivity 3,068–3,850 Kg/Ha as many as 10 people or 21.29%. This fact illustrates that the productivity produced by respondent farmers in Kaongke-ongkeavillage is different. The difference in the productivity of the coffee produced is caused by differences in the use of the number of seeds, the use of unbalanced fertilizers, the lack of use of drugs or excessive use of drugs, the condition of the organic matter content of each respondent farmer's land which is different, the use of labor not optimal when needed, especially during the eradication of pests and plant diseases.

#### **Analysis of the Effect of Simultaneous Production on Coffee Productivity in Kaongke-ongkea Village**

Research conducted in Buton Regerency, Kaongke-ongkea village on the influence of production factors on the productivity of the coffee business was analyzed using Multiple Linear Regression Analysis

**Ho = There is no effect of land area, coffee beans, labor, and pesticides on the coffee productivity.**

**H1 = There is a simultaneous effect of land area, coffee beans, labor, fertilizers and pesticides on coffee productivity**

Based on the results of multiple regression calculations using the SPSS program, it shows that the independent variables of production factors which include land area, seeds, labor, fertilizers, and medicines together and significantly affect the dependent variable (productivity). This can be seen in the results of the analysis carried out obtained a significance value of 0.000. This probability value is smaller than the significance value or confidence level = (Sig < 0.05), thus it can be said that Ho is rejected, and the proposed Ha is accepted which means that the area of land, seeds, labor, fertilizers and medicines together and significantly affect the dependent variable (productivity) of lowland coffee farming. Generally, every farmer in farming is different in carrying out activities related to coffee production.

**Tabel 8. Multiple Linear Regression Analysis Results (ANOVA)**

Model	Sum of Squares	df	Mean Square	F	Sig
<b>Regresion</b>	21316557.097	5	42663311.419	25.89	0000

<b>Residuel</b>	6751006.606	41	164658.698
<b>Total</b>	28067563.702		

a. Predictors; Constant, Pesticide, Labor, Seed, Land

b. Dependent Variable; Productivity

Based on the results of Multiple Linear Regression analysis, the coefficient of determination R Square is 0.759. This value shows the percentage of the influence of the independent variables which include land area, seeds, labor, fertilizers, and pesticides simultaneously or together on the dependent variable (paddy coffee productivity) of 75.9% and the remaining 24.1 (100%-75,9%) is influenced by other factors outside the research factors. For more details on the results of the analysis, consider the following table. Based on the results of the Multiple Linear Regression Analysis, the sig value was obtained to determine the effect of farmers' production factors on coffee productivity in Kaongke-ongkeaVillage. For more details can be seen in the following table:

**Table 9 Production factors on coffee productivity in Kaongke-ongkeaVillage**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std Error	Beta		
<b>(Constant)</b>	1370.989	277.224		4.945	000
<b>Land</b>	-802.119	290.666	-439	-2.760	009
<b>Seeds</b>	11.017	6.399	299	1.736	040
<b>Farmers</b>	-101	4.102	002	-025	981
<b>Fertilizers</b>	1.010	388	311	2.606	013
<b>Pesticide</b>	519.958	136.744	769	3.802	000

**Dependent Variabel, Productivity**

**Analysis of the Effect of Land Area on Coffee Productivity in Kaongke-ongkea Village**

**Ho = There is no significant effect of partial land area on coffee productivity**

**H1 = There is a significant effect of partial land area on coffee productivity**

Based on the results of the analysis carried out, the significance value was 0.009. This probability value is smaller than the confidence level value. Thus, Ho is rejected and H1 is accepted. Thus, it can be said that land area has a significant effect on coffee productivity. This situation shows that farmers who have large areas of land can produce higher production compared to farmers who have small land areas with the same production capability, in the sense that large areas of land if not. managed by respondent farmers, the higher the productivity produced in the coffee produced because the area of arable land will determine the intensity of their farming activities and the wider the area of land controlled by the respondent farmers, the more flexible the farmers are to plan the use of their land and the more eager to control their farming activities. This is in line with the opinion (Mosher, 1984) that the control of farmers over the land resources they own will determine the productivity of the farm they produce and in turn will affect the level of income. The land owned by farmers is one of the important production factors in determining the size of the resulting production because the wider the area of land that is cultivated, the greater the production results produced under conditions other factors support both the use of fertilizers, medicines, and labor.

**Effect of Seeds on Coffee Productivity in Kaongke-ongkea Village**

**Ho = There is no significant effect between partial use of seeds on coffee productivity**

**H1 = There is a significant effect between the partial use of seeds on coffee productivity**

Based on the results of the analysis carried out, a significance value of (Sig = 0.030) was obtained. The probability value is smaller than the confidence level (significant = 0.040). Thus, it is said that Ho is rejected and Ha is accepted, which means that the use of coffee beans has a

significant effect on coffee productivity. This shows that the use of quality coffee beans can affect the productivity of coffee yields. Farmers in carrying out coffee planting activities, especially the use of coffee beans, are adjusted to the area of land being cultivated, the wider the land to be planted, the more seeds are used. This of course will have an impact on the resulting coffee production. The results showed that the more coffee beans planted, the higher the yield of coffee produced. However, this needs to be supported using production facilities that are recommended and in accordance with the dose, this view is in line with (Soekartawi, 1990) which states that there are factors that influence production, namely biological factors, such as agricultural land with the type and level of fertility, seeds, fertilizers, drugs and so on. From the resulting production, the ability of each hectare produced will be known or in other words the level of productivity can be known.

#### **The Effect of Labor on Coffee Productivity in Kaongke-ongkeaVillage**

---

<b>Ho =</b>	<b>There is no significant effect of partial labor on coffee productivity</b>
<b>H1 =</b>	There is a significant effect of partial labor on coffee productivity

---

Based on the results of the Multiple Linear Regression analysis, the significance value of 0.981 was obtained, the probability was greater than the confidence level (sign = 0.05). This means that the probability (0.981) is greater when compared to the significant level = 0.05. Thus, Ho is accepted and H1 is rejected. It can be said that the productivity of lowland coffee is not significantly affected by the labor of farmers in Kaongke-ongkeaVillage. This situation is special in the research location where the use of a large number of workers and those who use less labor have the same opportunities in producing production. Because the use of labor in large quantities but does not work optimally with working hours that are not maximal, it will certainly result in productivity that is not in line with expectations. In numbers it has the same potential as the number of family dependents owned by respondent farmers, although based on the results of the study, the average number of dependents is obtained. - an average of 4 people per farmer, but the number of dependents of the family can certainly be positive and negative in the sense that it can provide a large enough contribution to farmers if the family members help farmers maximally in carrying out their farming activities but can also be a burden for farmers if members the family is not involved in farming activities so that it will have an impact on the productivity results achieved to be not optimal.

#### **Effect of Fertilizer Use on Coffee Productivity**

---

<b>Ho =</b>	<b>There is no significant effect between the partial use of fertilizers on the coffee productivity</b>
<b>H1 =</b>	There is a significant effect of partial fertilizer on coffee productivity

---

Based on the results of the analysis carried out, it was obtained a significance value of (Sig = 0.013), this probability value is smaller when compared to the confidence level (significant = 0.05), Thus Ho is rejected and H1 is accepted, which means that the use of fertilizers has a significant effect on yield productivity coffee. This situation indicates that the use of fertilizers by respondent farmers in the research location has an influence on the production of coffee produced. Farmers who use fertilizers that are in accordance with the recommendations in the sense that according to the dosage will certainly provide maximum results. The results of this study are in accordance with the results of an interview with one of the respondents who stated that in carrying out coffee planting activities the use of balanced fertilizers according to the recommendation greatly affects the production yield of each hectare, further stating that the use of fertilizers will have different results with other farmers who do not use of fertilizers because the soil that has long been used for planting coffee, so that to produce maximum production, the use of balanced fertilizers must

be used. This view is supported by (Ismunadji, 1983) the size of the production obtained is determined by the ability of farmers to apply existing technology and which causes differences in coffee production.

### **Analysis of the Effect of Pesticides on Coffee Productivity in Kaongke-ongkea Village**

**Ho = There is no significant effect between pesticides partially on coffee productivity.**

**H1 = There is a significant effect between pesticides partially on coffee productivity**

Based on the results of the t-test analysis carried out, the t-value was 3.802 with a significance of (sig = 0.00), this means that the probability (0.000 is smaller than the confidence level = 0.05. Thus, Ho is rejected and H1 is accepted, it can be said that pesticides have a significant effect on coffee productivity. This shows that respondent farmers who use pesticides on plants that are attacked by pests and diseases in accordance with the dose will provide maximum productivity results in accordance with the results of the study. It is known that respondent farmers in Kaongke-ongkea Village are farmers those who have been around for a long time and understand the benefits of using pesticides on plants, the only thing that distinguishes one farmer from another is the amount of pesticide and the type of pesticide to be used and the level of desire the public to seriously use the right dose.

Based on the coefficient table and the explanation above, it can be said that of the five independent variables, namely the area of land (X1), seeds (X2), labor (X3), fertilizers (X4) and pesticides (X5), the dominant variable has an influence on business productivity. Coffee farming is a variable medicine (Pesticide) (X5) so that the regression equation can be written as follows.  $Y = 1370.989 - 802,119 X_1 + 11,107 X_2 - 101 X_3 + 1,010 X_4 + 519,958 X_5 + e$ .

### **Farmers' Income**

Farmers' income is the result of sales from coffee farming both in the form of coffee products and horn skin coffee products minus the costs that must be incurred. Below, we will discuss the income from sales, cost analysis, and coffee farmers' income.

#### **a) Income**

Farmers' income is the result of selling Arabica coffee products, both in the form of coffee logs and coffee horns. The logs coffee are sold directly to the collectors, while the horn coffee is processed using a pulper that is rented at a wholesaler. This revenue is the product volume multiplied by the selling price. Based on the tabulation and the results of the author's analysis that the average number of logs produced in 1 hectare is 3,290 liters at a price of IDR. 3,000, - per liter, so that farmers receive an average of Rp. 9,870,000,- per hectare. Arabica coffee farmers who sell their products in the form of horn skin coffee with a selling price of IDR 13,000 per liter. The average production of leather horn coffee is 1,291 liters per hectare, so that farmers receive an average of IDR16. 783,000,- per hectare.

#### **b) Cost**

Costs are all expenses incurred by farmers both in the production process and in the harvest and post-harvest processes, as well as transportation. Based on the costs incurred by Arabica coffee farmers in Kaongkeongkea Village are: fertilizer of Rp. 978,757, per hectare. The cost of harvesting is IDR 500 per liter of coffee logs or IDR 1,645,000 per hectare. The cost of local transportation from the garden to the farmer's house is Rp. 500, per liter of coffee logs or IDR 1.645.000- per hectare, while the transportation to Sungguminasa or Makassar is IDR. 200,- per liter of horn skin coffee. Rent a pulper to peel the skin of the fruit into horn coffee for IDR. 200- per liter log or IDR. 658.000- per hectare.

Farming income in the research location, calculated based on data obtained from respondent farmers as many as 77 people. Farming revenue is obtained from the product of the number of products received by the respondent, while the income is obtained from the difference between

revenue and total farming costs incurred. Based on data and analysis of the income and costs of Arabica coffee farming owned by respondents in Kaongkeongkea Village, it can be seen that the average income per hectare received by farmers is as shown in the table below.

**Table 10 Income Per Hectare Received by Farmers**

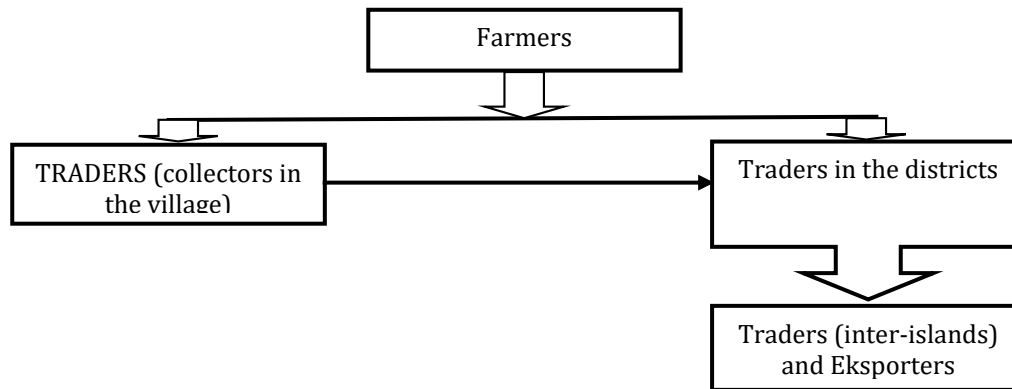
No	Description	Value
1	Coffee Bean Production	3.290 Liter
2	Horn Skin Production	1.291 Liter
3	Coffee Bean Income (TR1)	Rp. 9.870.000
4	Horn Skin Coffee Income (TR2)	Rp. 16. 783.000
5	Expenses (the selling of coffee beans)	Rp. 4. 268.758
6	Expenses (the selling of horn skin coffee)	Rp. 4.926,758
7	Income (the selling of coffee beans)	Rp. 5.601.242
8	Income (the selling of horn skin coffee)	Rp. 11. 856. 242
9	B/C Racio (coffee beans)	1,31%
10	B/C Racio (horn skin coffee)	2,41%

Based on cultivation business analysis and business feasibility analysis by (Edy Panggabean, 2011), if managed intensively, the total production of logs is 10,000 liters per hectare, so that the total revenue is Rp. 30,000,000, -, if sold in the form of horn skin coffee products Then the revenue is IDR 52,000,000 per hectare. The production cost of Arabica coffee logs per hectare is IDR.12.100.000,-, if the pulper is added, the cost increases to IDR.14.100.000,-. The income of the log coffee farm is IDR 17,900,000-per hectare, and the income of the horn skin arabica coffee farming is Rp. 37,900,000, - per hectare. The difference in the income of the log coffee farming business (IDR. 17,900,000 - IDR. 5,601,242) is IDR. 12,298,758- and the difference in the income of the horn coffee farming business (IDR 37,900,000 - IDR 11,856,242) is IDR. 26,043,758. This illustrates that the potential to increase the income of coffee farmers still has a very large opportunity.

### Marketing

After the coffee farmers have succeeded in producing the coffee beans needed by the community and the traders set a reasonable price, the next step is to determine the method of delivering the product to the market through effective routes that can provide fair benefits to marketing agencies. This marketing agency is a means for the movement of production goods from producers to final consumers. The marketing institutions in question are collectors, wholesalers, and exporters, while producers are coffee farmers in Kaongkeongkea Village, and final consumers are people who consume coffee. The coffee marketing channel in Kaongkeongkea Village consists of two types, namely the first from farmers to collectors to wholesalers to exporters and the second is from farmers to wholesalers to exporters. The second marketing channel, namely farmers selling directly to wholesalers, has a marketing efficiency value of 0.1% more efficient than the first marketing channel. This shows that the shorter the marketing chain, the marketing activity is much more efficient. Alternative strategies that are expected to increase farmers' income and coffee marketing are: implementing intensification technology packages for harvest and post-harvest, utilizing government support and utilizing business support to increase productivity and quality of the coffee beans. The harvest schedules is also need to be arranged as well as the trade flow with the traders. The best selection of the coffee logs and the arrangement of farmers is also crucial to overcome labor shortages at the time of the main harvest.

Based on the results of the interviews with respondents, the trade flow used by farmers in Kaongkeongkea Village is described in the chart below.



## CONCLUSION

Based on the results of multiple linear regression analysis shows that the variables of land area, seeds, labor, fertilizers, and pesticides together have a significant effect on coffee productivity. The effect given is 75.9% and the remaining 24.1% is influenced by other variables outside the research variables; the results of the partial analysis obtained a Sig value of 0.009. This value indicates that the area of land has a significant effect on the productivity of coffee yields. The larger the area of land managed by farmers, the greater the production and the resulting productivity will also increase; the results of the partial analysis obtained the value of sig = 0.04. This value indicates that the use of seeds has a significant effect on coffee productivity; the results of the partial analysis obtained the value of sig = 0.981. This value indicates that the workforce does not have a significant effect on coffee productivity, because the labor that is devoted does not work optimally; the results of the partial analysis obtained a value of sig = 0.013. This value indicates that fertilizer has a significant effect on coffee productivity; and the results of the partial analysis obtained the value of sig = 0.000. This value indicates that pesticides have a significant effect on the productivity of the coffee produced. The market of the coffee industry in Kaongkeongkea district consists of two types of trade flow, first, farmers to collectors to wholesalers then to exporters. Second, farmers directly to wholesalers and then to exporters.

## REFERENCES

- Afolami, C. A., & Ezebilo, E. E. (2021). *Strategy for Improving Coffee Production and Processing in Papua New Guinea: Lessons from the Top Five Coffee Producing Countries* (Issue 184).
- Aprianingsih, K. S. and A. (2018). Strategy to Improve Smallholder Coffee Farmers Productivity. *The Asian of Technology Management*, 11(1), 1–9.
- Duaja, M. D., Kartika, E., & Johannes, J. (2020). Are aids enough to empower: case of peatland Liberica Coffee farmer in Indonesia. *Jurnal Perspektif Pembiayaan Dan Pembangunan Daerah*, 8(4), 331–340. <https://doi.org/10.22437/ppd.v8i4.10831>
- Hotden Leonardo Nainggolan dan. Johndikson Aritonang. (2012). “Pengembangan Sistem Agribisnis Dalam Rangka Pembangunan Pertanian Berkelanjutan.”
- Iskandar, B. S., Iskandar, J., Irawan, B., Suroso, & Partasmita, R. (2019). The development of coffee cultivation in the traditional agroforestry of mixed-garden (Dukuh lembur) to provide social-economic benefit for the outer baduy community, South Banten, Indonesia. *Biodiversitas*, 20(10), 2958–2969. <https://doi.org/10.13057/biodiv/d201026>
- Mahmuda, Dewi, Wa Ode Al Zairani, Kartina Yati, and Lutkifli Lutkifli. (2020). “Penyuluhan Mengenai Peran Penting BUMDes Dalam Menggerakkan Ekonomi Masyarakat.” *Community Engagement and Emergence Journal (CEEJ)* 2 (1): 101–7. <https://doi.org/10.37385/ceej.v2i1.143>.
- Nugraha, Erlangga, and Leonardi Paris Hasugian. (2018). “Sistem Informasi Manajemen Pertanian Pada Lembang Agri Gapoktan.” Universitas Komputer Indonesia.
- Panggabean, E, 2011. *Buku Pintar Kopi*. Penerbit Agro Media Pustaka Jakarta
- Saragih, B., Kuswardani, R. A., & Hasibuan, S. (2019). Strategi Peningkatan Pendapatan Usahatani Padi Sawah di Kota Tebing Tinggi. *AGRISAINS: Jurnal Ilmiah Magister Agribisnis*, 1(2), 177–189. <https://doi.org/10.31289/agrisains.v1i2.247>
- Taib, G., & Hari, P. D. (2019). Analysis of Management, Technology and Quality of Coffee Bean in West Sumatera. *IOP Conference Series: Earth and Environmental Science*, 347(1), 1–7. <https://doi.org/10.1088/1755-1315/347/1/012039>

- Touri, M. (2016). Development communication in alternative food networks: empowering Indian farmers through global market relations. *The Journal of International Communication*, 22(2), 209–228. doi:10.1080/13216597.2016.1175366
- V., & Bhat, B. V. (2010). Shrimp farmers in India: Empowering small-scale farmers through a cluster-based approach. In In: De Silva S.S., Davy F.B. (eds) *Success Stories in Asian Aquaculture*. Dordrecht: Springer. [https://doi.org/10.1007/978-90481-3087-0\\_3](https://doi.org/10.1007/978-90481-3087-0_3)
- Wambua, D., S. Ndirangu, L. Njeru, and B. Gichimu. (2019). “African Journal of Agricultural Research Effects of Recommended Improved Crop Technologies and Socio-Economic Factors on Coffee Profitability among Smallholder Farmers in Embu County, Kenya.” *African Journal of Agricultural Research* 14 (34): 1957–66. <https://doi.org/10.5897/AJAR2019.14511>.
- Wambua, Daniel M., Bernard M. Gichimu, and Samuel N. Ndirangu. (2021). “Smallholder Coffee Productivity as Affected by Socioeconomic Factors and Technology Adoption.” *International Journal of Agronomy* 12 (1): 8. <https://doi.org/10.1155/2021/8852371>.
- Wichmann, S., (2010). Economic incentives for climate-smart agriculture on peatlands in the EU, Report, Institute of Botany and Landscape Ecology, University of Greifswald
- Widyaty, E., (2022). Kajian Optimasi Pengelolaan Lahan Gambut dan Isu Perubahan Iklim, *Tekno Hutan Tanaman*, Bo. 4 No. 2, 57-68 <https://publikasiilmiah.ums.ac.id/handle/11617/12392?show=full>
- Yin, Robert, K., (2011). *Qualitative research from start to finish*. New York: The Guilford Press. <http://eli.johogo.com/Class/Qualitative%20Research.pdf>
- Zarliani, W. O. Al. (2021). *Media Agribisnis Media Agribisnis. Media Agribisnis*, 2(1), 18–36.