



Income Analysis of the Kampung Susu Lawu's Dairy Cattle Business in Plaosan District, Magetan Regency, East Java

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Abstract. This research aims to analyze the income of the dairy cattle business and to analyze the factors that influence the income of the dairy cattle business in Kampung Susu Lawu. The research was conducted in Kampung Susu Lawu, Plaosan District, Magetan Regency, East Java. This research used a survey method with a sample of 60 respondents using purposive sampling. The data was analyzed descriptively quantitatively, namely income analysis and multiple linear regression analysis. The results of the research show that the income of the dairy cattle business in Kampung Susu Lawu is an average of IDR. 45,163,538/farmer/year. The research results show the regression model $Y = 0.075 + 0.069X_1 - 0.121X_2 + 1.252X_3 - 0.143X_4 - 0.147X_5 - 0.064X_6 + 0.198X_7$. The results of the regression analysis show that the R² coefficient value is 0.699, meaning that the variables age, education, milk production, farming experience, number of lactating cows, land area, and number of family members explain the income of dairy farmers in Kampung Susu Lawu by 69.9%, while for the remaining 30.1% is influenced by other variables outside the research. The t test (partial) variable milk production influences the income of dairy farmers with a calculated t value of 3.804 > t table 2.069. The conclusion from this research is that the factors influencing income are milk production, while the factors age, education, farming experience, number of lactating cows, land area and number of family members have no influence.

Keywords: Multiple Regression Analysis, Income, Dairy Business.

1 Introduction

The development of the livestock sub-sector has good potential to fulfill human needs such as the need for meat and milk. Dairy farming is one of the businesses that can be developed to produce cow's milk towards self-sufficiency and can expand employment opportunities [1]. Dairy farming is generally only used as a side job besides farming as the main job. Dairy farming carried out by the people still faces many obstacles, including the small scale of the business due to weak capital, low level of farmer skills [2]. Fresh milk production in Indonesia was 968,980 tons in 2022. This number increased

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by 2.38% compared to the previous year of 946,388 tons [3]. The dairy cattle population and milk production showed an increasingly good increase as indicated by the increase in the number of dairy cattle population and milk production each year.

Dairy farmers' income is obtained from total revenue minus total costs [4]. Farmers' revenue is obtained from the sale of cow's milk, the sale of calves, and the sale of retired cows. The source of dairy farmers' expenses comes from the costs include two types, variable costs and fixed costs. Variable costs consist of feed, medicine, electricity and water. Fixed costs consist of livestock depreciation, pen depreciation, equipment depreciation, and labor [6]. The net income received by farmers is obtained from the income obtained minus the costs incurred during the maintenance process [6]. The high and low income of dairy cattle farming is influenced by factors such as the number of lactating dairy cows owned, the selling price of livestock, the amount of milk production, labor wages, milk prices, and additional feed prices [7].

Magetan Regency is one of the areas chosen to develop dairy farming businesses, one of the places chosen is Kampung Susu Lawu. Kampung Susu Lawu is located in Sarangan Village, Plaosan District, Magetan Regency, East Java. The collaboration between Kampung Susu Lawu and PT. Nestle and PT. Frisian Flag as well as the existence of Kampung Susu Lawu will increase the income of farmers because it makes it easier for farmers to market their products without requiring large transportation costs. Therefore, it is necessary to conduct research on the analysis of dairy cattle business income and analyze what factors influence dairy cattle business income in Kampung Susu Lawu. Based on the background and problem formulation that has been described above, the first objective of the study is to analyze the income generated from dairy cattle farming in Kampung Susu Lawu. The second objective is to analyze the influence factor of age, education, milk production, experience livestock, number cow lactation, wide land, and the amount member family to dairy cattle business income in Lawu Milk Village.

2 Materials and Methods

This research was conducted in Kampung Susu Lawu, Sarangan Village, Plaosan District, Magetan Regency, East Java. The research design used in this study is quantitative descriptive analysis. The technique used in this study is a survey technique. Data was taken from dairy farmers in Kampung Susu Lawu which was chosen as the place to conduct the research by analyzing the income of the dairy cattle business and analyzing the factors that influence the income of the dairy cattle business

2.1 Determination techniques sample

The research location was determined intentionally (purposive sampling), which is a technique for determining the research location intentionally based on certain considerations [8]. The sampling determination technique in this study is to use the technique purposive sampling. The criteria used for taking sample in research. This is breeder

cow milk that has been own experience breeding for at least 1 year, and have cow lactation of at least 1 cow lactation with amount samples obtained as many as 60 respondents.

2.2 Data Analysis

Method data analysis used use analysis descriptive, analysis income and analysis of linear multiple regression. Descriptive method with quantitative approach is used to explain the situation to be studied. The variables measured in this study are income (Y) as the dependent variable and 7 independent variables, namely age (X1), education (X2), milk production (X3), experience breeding (X4), number cow lactation (X5), area land (X6) and amount member family (X7). Multiple linear regression analysis is used to determine the effect of independent variables (X1-X7) on the dependent variable (Y). Statistical test with determination coefficient (R²) to measure the extent to which a model is able to explain the variation of the dependent variable. F test to determine whether the independent variables simultaneously affect the dependent variable at a significance level of 5% (0.05). t test to test the partial effect of independent variables on the dependent variable, t count > t table then Ho is rejected and Ha is accepted which means significant, t count < t table then Ho is accepted which means not significant.

3 Result and Discussion

This study show that breeder Respondent dominated by farmers various gender man that is as much as 80%. The age most respondents in the range age > 50 years (46.99%) and followed by range aged 46-55 years (35.50%) and the least in the range age 25-35 years. Education level highest owned namely at the level education elementary school, namely as much as 35.5%. Experience farming cow milk that has been already been carried out lasts a long time, namely 5-10 years as much as 48.5%. The number member family owned farmer respondents at most 2-3 people, namely as much as 48%. Area of ownership the most land namely in the range of 0.5-1 hectare (58.5%).

3.1 Aspects cost

Table 1. Average Cost Initial Investment in Cattle Business Dairy in Kampung Susu Lawu (n=60).

Investment	Cost (IDR)	Percentage (%)
Purchase Brood stock	67,025,806	58.79
Construction of the Cage	40,741,935	35.74
Purchase Equipment	6,029,516	5.29
Purchase Equipment Other	212,290	0.19
Total	114,009,548	100

Source: Processed Primary Data, 2024

Cost investment is cost incurred moment beginning business farm founded until the walk business. Cost investment in business farm cow milk covering cost purchase seeds and development cage. Here This is the average cost investment business cow milk produced by the farmer cow Kampung Susu Lawu as many as 60 farmers depicted at Table 1.

Cost production is cost incurred during maintenance period until produce a product. Cost production covering cost fixed and cost variables. Here This is the average cost production business cow milk produced by the farmer cow of Kampung Susu Lawu as many as 60 livestock can see in Table 2.

Table 2. Average Cost Cattle Business Production in Kampung Susu Lawu (n=60).

Description	Cost (IDR/Year)
Variable Cost	
Feed	34,397,419
Labour	5,051,613
Artificial Insemination	155,806
Health	813,290
Electricity and Water	749,806
Transportation	1,485,677
TOTAL	42,653,613
Fixed Cost	
Depreciation Pen	1,870,538
Depreciation Dairy cow	3,671,095
Depreciation Equipment	488,758
Depreciation Equipment Other	35,684
TOTAL	6,066,074
TOTAL COST	48,719,687

Source: Processed Primary Data, 2024

Cost still consists of from depreciation cage, shrinkage seeds, and shrinkage equipment. According to [9] Fixed costs are costing whose total amount remains constant, not affected by changes in the volume of activities or activities at a certain level. This is the average cost fixed issued breeder business cow milking in Kampung Susu Lawu can see in Table 3.

Table 3. Average costs still business cow dairy in Kampung Susu Lawu (n=60).

Description	Cost (IDR)
Depreciation Pen	1,870,538
Depreciation Broodstock	3,671,095
Depreciation Equipment	488,758
Depreciation Equipment Other	35,684

Source: Processed Primary Data, 2024

Depreciation pen counted with formula cost beginning making pen shared age economical use cage. This how to calculate it is assumed that at the economic age of the cage it is considered that it no longer has any residual value. The average cost depreciation the cage that was released breeder amounting to IDR. 1,870,538/year.

3.2 Aspects income

Reception is results obtained breeder from all sale products produced from business farms run. According to [10] Total revenue is the total amount of a company's income obtained from the level of production multiplied by the price level. Acceptance received by farmers obtained from milk sales, sales calves, and sales brood stock reject (Table 4).

Table 4. Average Income from Cattle Farming Dairy in Kampung Susu Lawu (n=60).

Description	Revenue (IDR/Year)
Milk Sales	72,673,548
Calf Sales	8,516,129
Dairy cow cull Sales	12,693,548
Total	93,883,225

Source: Processed Primary Data, 2024

Sales of milk obtained breeder the day will deposited to place milk storage located in the cooperative. Report milk yield per breeder reported every 1 time in a month at the meeting regular of KTT Sumber Rejeki. The price of milk per liter determined by the collaborating parties with cooperative located in Kampung Susu Lawu. The average price of milk per liter amounting to IDR. 7,227, with an average milk yield of 10,026 liters/ year from an average of 3 head cow lactation. Thus, the average acceptance respondent from milk sales amounted to IDR 72,673,548/year. Income is the total revenue breeder cow milk reduced cost production issued during business cattle cow milk walking. According to [11] Income is a source of income for someone to meet daily needs and is very important for the survival and livelihood of a person directly or indirectly. The following this is the average income business cow dairy farm located in Kampung Susu Lawu can see in Table 5.

Table 5. Average Income Breeder Cow Dairy in Kampung Susu Lawu (n=60).

Description	Income (IDR/Year)
Total Revenue	93,883,226
Total cost	48,719,687
Total Revenue	45.163.5 38

Source: Processed Primary Data, 2024

Research result show that income breeder cow milk is amounting to IDR. 45,163,538/year. Income obtained from milk sales, sales calves, and sales brood stock

reject reduced with cost production that is concentrate, AI costs, costs health, costs electricity, water and transport as well depreciation cages, seeds and equipment.

3.3 Pearson Correlation

Normality Test. Normality test done before conduct a regression test for know what data will be tested normally distributed or not. Normality test is condition use statistics parametric that must be filled before do analysis multiple linear regression. Results of the normality test kolmogrov smirnov obtained mark based on table output one sample kolmogrov smirnov obtained sig. value 0.200 means the data obtained more from 0.05 then the data is normally distributed.

Linear regression analysis multiple. Factor affecting income breeder in study this multiple linear regression test was conducted with use independent variable that is age (X1), education (X2), milk production (X3), livestock experience (X4), number of cows lactation (X5), land area (X6), and number of family members (X7), while variable dependent is income (Y). The next process will statistical tests were conducted namely the determination test (R), F test, and T test.

Table 6. Multiple Linear Regression Results Income Breeder Cow Milking in Kampung Susu Lawu.

Variables	Coefficient Regression	t count	sig
Age (X ₁)	0.069	0.301	0.766
Education (X ₂)	-0.121	-0.821	0.420
Milk Production (X ₃)	1,252	3,804	0.001
Experience Livestock (X ₄)	-0.143	-0.440	0.664
Cow Lactation (X ₅)	-0.147	-0.677	0.505
Land Area (X ₆)	-0.064	-0.387	0.702
Member Family (X ₇)	0.198	1,315	0.202
Constants	0.075		
R-Square (R ²)	0.699		
Adjusted R ²	0.608		
F- Count	7,634		
Variables Dependent: Income			

Source: Processed Primary Data, 2024

Based on the data in Table 6 it can be written formula multiple linear regression stated like following :

$$Y = 0.075 + 0.069X_1 - 0.121X_2 + 1.252X_3 - 0.143X_4 - 0.147X_5 - 0.064X_6 + 0.198X_7 \quad (1)$$

In accordance with equality on obtained data, variables independent can depicted its influence to income breeder cow milking in Kampung Susu Lawu. Constant value 0.075 things This show if values X1, X2, X3, X4, X5, X6, still so the magnitude income

(Y) is 0.075. Age (X1) has coefficient regression marked positive of 0.069, meaning if mark coefficient other variables remain constant, then increase age as much as 1 unit will raise income breeder cow milk (Y) is 0.069 units. Education (X2) has coefficient regression marked negative of -0.121, meaning if mark coefficient other variables remain constant, then increase education as much as 1 unit will lower income breeder cow milk (Y) is 0.121 units. Milk production (X3) has coefficient regression marked positive as much as 1,252, things This means that if mark coefficient variable other still, then increase milk production of 1 unit will raise income breeder cow milk (Y) of 1,252 units. Experience Farming (X4) has coefficient regression marked negative of -0.143. This means that if mark coefficient variable other still, then increase experience farming as much as 1 unit will lower income breeder cow milk (Y) of 0.143 units. The amount cow Lactation (X5) has coefficient regression marked negative of -0.147. This means that if mark coefficient variable other still, then increase cow lactation as much as 1 unit will lower income breeder cow milk (Y) is 0.147 units. Land area (X6) has coefficient regression marked negative as big as -0.064. This means that if mark coefficient variable other still, then increase wide land as much as 1 unit will lower income breeder cow milk (Y) of 0.064 units. The amount member family (X7) has coefficient regression marked positive of 0.198. This means that if mark coefficient variable other still, then increase amount member family as much as 1 unit will raise income breeder cow milk (Y) of 0.198 units.

Statistical tests. Testing furthermore that is look for mark determination square (R2) for now proportion of variation dependent variable explained by the variation of the independent variable. Research results shown in Table 6, the magnitude R square coefficient (R2) is 0.699 with adjusted R2 value 0.608 in meaning connection variable independent to variable dependent strong Because R2 value is close number one. That thing show variable independent (X1, explain income breeder cow milking in Kampung Susu Lawu by 69.9% while For the remaining 30.1% is influenced by variables other outside research. Further testing namely, the F test can see in table 15, the F test was carried out nor now influence variable independent in a way together influence variable dependent. Test f in study This tested with see f count and f table as well as data significance.

Table 7. Results of the F-test analysis on income business cow milking in Kampung Susu Lawu.

Source Variation	Amount Square	df	Mean Square	F hit	Sig
Regression	56,424	7	8,061	7,634	0.000 ^b
Residual	24,286	23	1,056		
Total	80,710	30			

Source: Processed primary data, 2024

The results of data processing are obtained F value count as much as 7,634 data can be seen in Table 7. The values obtained Then compared to with F table which has F value

$7;24 = 2.24$. Both show comparison of F count $>$ F table ($7.634 > 2.24$), so that processed data results show that variable independent in a way simultaneously influential to variable dependent .

The t-test was performed to know influence variable independent in a way individual to variable dependent. Variable independent need tested one by one to know variable which independent can affect and not influence variable dependent. This t-test tested with see comparison between t-count with t-table or data significance and significance (0.05).

Table 8. Results of t-test analysis on income business cow milking in Kampung Susu Lawu

Variables	T count	T Table ($\alpha=0.05$)	Information
X ₁	0.301	2,069	No Significant
X ₂	-0.821	2,069	No Significant
X ₃	3,804	2,069	Significant
X ₄	-0.440	2,069	No Significant
X ₅	-0.677	2,069	No Significant
X ₆	-0.387	2,069	No Significant
X ₇	1,315	2,069	No Significant

Source: Processed primary data, 2024

Based on from Table 8 can know results from each t-test variable as following that the variable age (X1) has t - value $0.301 <$ t table 2.069. Based on results processing of the data variable age (X1) no influential to income breeder cow milk (Y). Research results in line with opinion [12] which states that age does not affect income. This means that if there is an increase or decrease in age, it will not affect the increase or decrease in income value . The average age of respondents is 4.5 years. Productive age is categorized from 15-45 years. Age 4.5 years and above is included in the less productive age because the enthusiasm and energy to do the work has decreased. Variable (X2) has t value $-0.821 <$ t table 2.069. Based on results from variable data processing education (X2) no influential to income breeder cow milk (Y). even though education No influential to income However in business farm education own leading values positive in accordance with research conducted [13] stated that sufficient education can certainly encourage someone to overcome the problems they face, especially livestock breeders in terms of increasing income from their businesses.

Variables milk production (X3) has t - value of $3.804 >$ t table 2.069. Variable milk production (X3) has an effect positive to income breeder cow milk (Y). It means more and more length of milk production then income business cow milk will experience increase. Research results in accordance with opinion [14] explains if t count is greater than t table then the relationship is significant. Conversely, if t count is smaller than t table then the relationship is not significant. Variable's experience raising livestock (X4) has t count value $-0.440 >$ t table -2.069 . This means based on results study variable experience raising livestock (X4) no influential to income breeder cow milk (Y). It is known farming cow milking in Kampung Susu Lawu only made into as work side.

It is in accordance with opinion [15] stated that businesses that are only carried out as a sideline will not run optimally.

Variables amount cow lactation (X5) has t value $-0.677 > t$ table -2.069 . This means variable cow lactation (X5) no influential in a way significant to income breeder cow milk (Y). thing This due to Because every cow lactation will produce different types of milk in accordance with age cows and their production period. Variables wide land (X6) has t count value $-0.387 > t$ table $-2,069$. It means variable wide land (X6) no influential to income breeder cow milk (Y). This is Because wide land owned each breeder different and not all land breeder can produce feed for his livestock or used as the cage. Most of land owned breeder utilized as producer food in the form of vegetables. Variables amount member family (X7) has t - value $1.315 < t$ table 2.069 . Based on results study show amount member family (X 7) no influential in a way significant to income breeder cow milk (Y). It means level income breeder no depends to how much Lots amount member the family he is responsible for. The number member family can also make motivation for head family in fulfil need life his family [16].

4 Conclusion

Based on results research that has been done, the conclusions that can be drawn taken from study is income breeder business cow milking in Kampung Susu Lawu is amounting to IDR 45,163,538/year, with an average ownership of cow lactation as many as 3 head Analysis results multiple linear regression show that variable milk production is influenced to income breeder cow milk , while variable age, education, cow lactation, experience farming, wide land, and the amount member family no influential to income breeder cow milking in Kampung Susu Lawu.

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