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Analysis Of Farmers' Decisions On The Use Of A Labor Wage System And Its Effect On Increasing The Income Of Livestock Feed Corn Farming In Laloea Village, Tongkuno District, Muna Regency

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Abstract

This study aims to determine how farmers' decisions regarding the labor wage system contribute to increasing income in livestock feed corn farming. The sample consisted of 30 respondents selected using *simple random sampling.* Data were analyzed using logistic regression with the assistance of SPSS 16. The results show that education level has a negative and significant effect on farmers' decisions to use a family labor wage system, while age and farming experience have no significant effect on farmers' decisions to use a labor wage system. The income of farmers using the family labor wage system was Rp94,645,428 per planting season, while that of farmers using a non-family labor wage system was Rp29,136,000 per planting season.

Keyword: Farmers' Decision, Labor Wage System, Farmer Income, Livestock Feed Corn

INTRODUCTION

Corn is one of the agricultural commodities that plays an important role in meeting food and livestock feed needs. The increasing demand for corn must be matched by productivity and efficient farm management so that it can contribute to farmers' income. In practice, however, farmers face various constraints, such as changing climatic conditions, price fluctuations, rising production costs, and limited labor. These conditions require farmers to make appropriate decisions in managing their farming activities, including in determining the labor system and wage payment.

Farmers' decisions in applying a labor wage system are an important aspect because they

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relate to labor requirements, operational costs, and the production obtained. Using wage labor can help farmers complete farming activities more effectively, especially when labor needs exceed the capacity of family labor. Nevertheless, its application can increase production costs, so farmers need to consider the balance between labor costs and expected income. According to Soekartawi (1988), the decision-making process involves identifying problems, determining alternative solutions, and having the opportunity to make changes. In line with this, Asnur (2019) explains that a decision is the result of weighing several alternatives before making a choice. Thus, farmers' decisions to use a labor wage system cannot be separated from considerations of economic conditions, labor availability, production needs, and potential farm income.

One commodity that requires labor management in its cultivation is corn. Corn is a food crop widely used both as food and as livestock feed (Khaerizal, 2008). The increasing demand for corn for both purposes calls for efforts to raise production through expanding the planted area and improving productivity. In addition, the marketing potential of corn gives farmers the opportunity to earn income from farming activities (Hasan et al., 2016). Therefore, the management of production factors, including labor and its wage system, is an important part of supporting the success of corn farming.

Muna Regency is one of the areas in Southeast Sulawesi with potential for developing corn farming. According to data from Statistics Indonesia (BPS, 2024), total corn production in Muna Regency in 2023 reached 15,291 tons. The highest production was in Watopute District at 3,865 tons, followed by Kabangka District at 1,994 tons, Parigi District at 1,805 tons, Kabawo District at 1,654 tons, and Kontukowuna District at 1,484 tons. Meanwhile, Tongkuno District produced 846 tons of corn. These data show that corn farming is spread across a number of districts and is one of the agricultural commodities developed by the people of Muna Regency.

One area with corn farming activity is Laloea Village, Tongkuno District, Muna Regency. Some of the villagers work as farmers growing corn, particularly corn intended for livestock feed. In their production activities, farmers face labor needs for completing the various stages of farming. Differences in land area, family labor capacity, economic conditions, and the need to complete work can influence farmers' decisions to use wage labor. This choice potentially affects the amount of production costs and the income farmers receive. A study is therefore needed to understand farmers' considerations in choosing a labor wage system and its relationship with the income of livestock feed corn farming.

Several previous studies have addressed aspects of welfare, income, and corn farming development. Syamsinar (2022), for example, examined the factors affecting the welfare of yellow corn farmers in Kabangka District, Muna Regency. Apriyani et al. (2021) analyzed income

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and the factors influencing farmers' decisions to join the *corporate farming* program. Meanwhile, Tumangkeng Steeva et al. (2023) studied corn farming development strategies to increase farmers' income in Binjeita Village, East Bolangitang District, North Bolaang Mongondow Regency. These studies provide an overview of the factors related to welfare, income, and farming development. However, research specifically focusing on farmers' decisions to use a labor wage system and its relationship with the income of livestock feed corn farming in Laloea Village still needs to be conducted.

Based on these conditions, this study aims to analyze farmers' decisions on the use of a labor wage system and the factors influencing them in livestock feed corn farming in Laloea Village, Tongkuno District, Muna Regency, and to examine their relationship with farm income. The results are expected to provide an overview of farmers' considerations in determining their labor system and to serve as input for managing production costs in order to support higher income and the sustainability of corn farming.

METHOD

This study was conducted in Laloea Village, Tongkuno District, Muna Regency, from May to July 2024. The research location was determined deliberately (*purposive*) on the grounds that most of the local people carry out livestock feed corn farming activities.

The study population was all corn farmers in Laloea Village, totaling 88 people. The sample was determined using the *simple random sampling* technique with the Slovin formula at an error level (*margin of error*) of 15%, yielding 30 respondents. This study used primary and secondary data. Primary data were obtained through observation and direct interviews with respondents using a questionnaire, while secondary data were obtained from the documents of relevant institutions, books, and scientific journals.

Data were analyzed using logistic regression (*logit*) to determine the factors influencing farmers' decisions to use a labor wage system. The dependent variable in this study was the decision to use a labor wage system, while the independent variables were farmer age, education level, and farming experience. The logistic regression model used is formulated as follows:

$$\text{Log } [(P/(1-P)] = \beta_0 + \beta_1 + \beta_2 + \beta_3 + e \quad \text{..... (3.2)}$$

Where:

PI = Farmers' Decision to Use the Labor Wage System

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= farmer age (years)
= education level
= farming experience (years)

β0 = *intercept*

β1- β3 = *regression coefficients*

e = error term

RESULTS AND DISCUSSION

Land Area of Livestock Feed Corn Farming

Land area is one of the production factors related to labor needs in farming activities. Based on the research results for 30 respondents, 26 farmers used family labor and 4 farmers used non-family labor. The distribution of farmers' land area is presented in Table 1.

Table 1. Farmers' Land Area by Labor Use System

Land area (ha)	Family labor (persons)	Non-family labor (persons)	Total (persons)	Percentage (%)
<1	3	0	3	10.00
1	23	0	23	76.67
2	0	4	4	13.33
Total	26	4	30	100.00

Based on Table 1, most of the farmers using family labor have a land area of 1 ha, namely 23 people (76.67% of all respondents). Meanwhile, all farmers using non-family labor have a land area of 2 ha, namely 4 people (13.33%). This condition indicates that labor needs can be related to the land area managed. The larger the land cultivated, the greater the labor needed to complete production activities. Thus, farmers need to consider the availability of family labor and their financing capacity before determining the labor use system.

Income of Livestock Feed Corn Farming

Farm income is the difference between the revenue obtained and the production costs incurred during the farming activity. The results of the income analysis by labor use system are presented in Table 2.

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Table 2. Income Analysis of Livestock Feed Corn Farming by Labor Use System, 2024

Description	Unit	Family labor	Non-family labor
Production	Kg/season	12,020	3,840
Price	Rp/kg	8,000	8,000
Revenue	Rp/season	96,160,000	30,720,000
Production cost	Rp/season	1,514,572	1,584,000
Income	Rp/season	94,645,428	29,136,000

Based on Table 2, the income of farmers using family labor was Rp94,645,428, while farmers using non-family labor earned Rp29,136,000 per planting season. The production cost of non-family labor, Rp1,584,000, was higher than that of family labor, Rp1,514,572. This difference indicates additional expenditure when using non-family labor, mainly related to wage payments. However, the income difference between the two groups also needs to be viewed in terms of the production volume and land area managed. Therefore, the labor use system is one aspect that needs to be considered in managing costs and increasing farm income.

Factors Influencing Farmers' Decisions on the Use of a Labor Wage System

Logistic regression analysis was used to determine the effect of age, education level, and farming experience on farmers' decisions to use a labor wage system. Data were processed using SPSS version 16 at a significance level of 15% ($\alpha = 0.15$).

Simultaneous testing was conducted to determine the effect of all independent variables on farmers' decisions to use a labor wage system. The results of the *Omnibus Tests of Model Coefficients* are presented in Table 3.

Table 3. Results of the Likelihood Ratio Test (Omnibus Tests of Model Coefficients)

Test	Chi-square	df	Sig.
Step	7.904	3	0.048
Block	7.904	3	0.048
Model	7.904	3	0.048

Based on Table 3, the Chi-square value is 7.904 with a significance of 0.048. This significance value is smaller than the significance level of 0.15, so it can be concluded that age, education level, and farming experience simultaneously have a significant effect on farmers'

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decisions to use a labor wage system. This result shows that the three variables together are related to farmers' decisions in determining labor use in livestock feed corn farming.

The coefficient of determination was used to assess the ability of the logistic regression model to explain farmers' decisions based on the independent variables used. The results of the *Model Summary* analysis are presented in Table 4.

Table 4. Results of the Coefficient of Determination of the Logistic Regression Model

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	15.656	0.232	0.426

Based on Table 4, the *Nagelkerke R Square* value is 0.426. This value shows that the model has an explanatory power of 42.6% based on the three independent variables used, namely age, education level, and farming experience. Meanwhile, other aspects not included in the model may also be related to farmers' decisions to use a labor wage system.

Partial testing using the Wald test was conducted to determine the effect of each independent variable on farmers' decisions to use a labor wage system. The results of the *Variables in the Equation* analysis are presented in Table 5.

Table 5. Results of the Wald Test on Factors Influencing Farmers' Decisions

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Age	-0.015	0.090	0.028	1	0.866	0.985
Education level	-2.794	1.515	3.402	1	0.065	0.061
Farming experience	-0.079	0.129	0.372	1	0.542	0.924
Constant	10.535	5.242	4.038	1	0.044	3.760E4

Based on Table 5, education level is the only variable that has a significant partial effect on farmers' decisions to use a labor wage system. Meanwhile, age and farming experience show no significant effect. The explanation for each variable is as follows.

1. **Farmer Age**

The age variable has a regression coefficient of -0.015 with a significance value of 0.866, greater than α = 0.15. This result shows that age has no significant effect on farmers' decisions to use a labor wage system. The negative coefficient indicates an inverse relationship between

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age and the probability of choosing the decision category coded as 1, but this relationship is not statistically proven.

This condition shows that age differences are not necessarily the main consideration for farmers in determining the labor system. The decision may be more related to labor needs, land conditions, and the availability of family labor. This result is in line with Aprilyanti (2017), who explains that age differences that are not too large can cause age to show no significant effect on decision making.

2. Education Level

The education level variable has a regression coefficient of -2.794 with a significance value of 0.065, smaller than α = 0.15. This result shows that education level has a significant effect on farmers' decisions to use a labor wage system at the 85% confidence level. The negative coefficient indicates an inverse relationship between education level and the probability of choosing the decision category coded as 1.

Education is one aspect that can influence a person's mindset and considerations in making decisions. According to Muhibbin (2002), education plays a role in developing individuals' knowledge, habits, and attitudes. Therefore, education level can be related to how farmers consider labor use in managing their farms. The results of this study show that education is the variable with a significant partial effect compared with age and farming experience.

3. Farming Experience

The farming experience variable has a regression coefficient of -0.079 with a significance value of 0.542, greater than α = 0.15. This result shows that farming experience has no significant effect on farmers' decisions to use a labor wage system. The negative coefficient indicates an inverse relationship between farming experience and the probability of choosing the decision category coded as 1, although this relationship is not statistically significant.

This indicates that the length of farmers' experience in managing their farms does not necessarily determine the choice of a particular labor system. Farmers with different experience may have relatively similar considerations in determining labor use, especially regarding land area, work requirements, and economic capacity. This finding is in line with the studies of Sholeh and Khoyimah (2012), Apriliana et al. (2016), and Baihaqi et al. (2018), which show that farming experience does not always influence farmers' decision making.

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CONCLUSION

Based on the research findings, it can be concluded that education level has a negative and significant effect on farmers' decisions to use a family labor wage system, while age and farming experience have no significant effect. In terms of income, farmers using the family labor wage system earned Rp94,645,428 per planting season, while farmers using non-family labor earned Rp29,136,000 per planting season. These results show an income difference between the two groups of farmers, with higher income in the group using family labor.

Farmers are expected to evaluate their labor use system by considering cost efficiency, labor needs, and production output so that farm income can be increased. In addition, the government is expected to provide assistance and training to farmers on labor management, wage systems, cultivation techniques, and production cost management to support farmers' productivity and welfare.

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