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## Difference use of labors in land area for each stage of rice farming in irrigated rice fields

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**Abstract.** The purpose of this study was to look at differences in labor use in <1 ha land area and > 1 ha land area in rice farming in irrigated rice fields in Mulyasri Village, Tomoni District, East Luwu Regency, South Sulawesi. The sample of respondents in this study was 32 irrigated rice farmers. Data collection methods used in this study were interviews and questionnaires. The analytical method used in this study was the Analysis Of Variance (ANOVA) method. This research was conducted from October 2018 to November 2018. The results of the study showed that there were differences in the use of labor. The use of HOK on land area < 1 ha is more than the use of HOK on land area > 1.

### 1. Introduction

Every agricultural business requires labor. Farmers and the most rural community have difficulty to meet the educational and health needs of their families. They are constantly experiencing economic downturns and quality of life due to insufficient wages, the high cost of production and the low price of their products [1]. Therefore the use of labor is expressed by the amount of labor used. Usually, a large-scale agricultural industry will use labor within or outside the family. In addition to the employment analysis also makes it easy to compare the use of labor between male, female, child, livestock and machine workers. It is necessary to standardize the workforce, which is usually called the HOK (Daily Workers). In general, the use of working hours or working days is considered to meet the needs. So that the assumption is often used without regard to work habits, is that eight working hours is equal to one working day [2].

Labor is one of the supporting factors in increasing farm production. Labor is also a source of production activities. They get a decent income in the form of wages from the production process. This can lead to an effective source of demand for goods and services in economic development.

Men are the main asset that is the planning and active actor of every business. They have thoughts, feelings, desires, educational status and background, age, sex. Dissimilar with machines, money, and materials that are passive and can be controlled and fully regulated in supporting the achievement of a goal [3]. In a narrow sense, farmers are also interpreted as activities to utilize a plot of land to cultivate certain types of plants, especially seasonal ones [4].

In this era, farming is vital, especially in the scope of national development, because farming can absorb labor. Farming is a mainstay of food self-sufficiency and a provider of finished commodities and industrial materials for domestic and export. Most of the population of Indonesia depends on their



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lives on farming now and in the future. The Indonesian community is a pillar of development to realize the ideals of the proclamation, welfare and social justice [4].

## 2. Methods

The research location was carried out in Mulyasri Village, Tomoni District, East Luwu Regency, South Sulawesi Province. Site selection was made by purposive sampling, namely deliberate choice with the consideration that the majority of the people in the area work as irrigated rice farmers. The research \ conducted from October 2018 to November 2018.

The population in this study was rice farmers. The community is 315 irrigated rice farmers who live in Mulyasri Village, Tomoni District, East Luwu Regency. According to Arikunto[6], the number of samples chosen is 10% - 15% of the population, sampling is done by simple random sampling. If the subject is less than 100, the community is better taken as a sample, but if more than 100 then it can be taken between 10% -15% or more. Based on this matter, the number of respondents of rice farmers was 52 irrigated rice farmers.

The data collected in this study consisted of two types, namely primary data and secondary data. Primary data was obtained from direct interviews with respondents using questionnaires (list of written questions) prepared. This list was created to gather information about the characteristics of respondents(age, education, land area, farming experience, number of family dependents, household needs), costs used during the production to harvest process, total production per hectare, and revenue, b) Secondary data was data obtained from the village office, Central Bureau Statistics, reading material, literature, and documents that are closely related to this writing.

Data collection techniques used in this study are a) structured interview. A structured interview is conducted by meeting in person or through other media and asking a number of questions related to research so that researchers get the information or data needed, b) questionnaire. The questionnaire is a list of questions about the problem that you want to study to get the information needed by the researcher.

Data obtained from the field were processed using the Analysis Of Variance (ANOVA) technique then proceed with a descriptive explanation in the discussion using data analysis with the following formula.

$$\bullet \text{ FK} = \sum_i \sum_j (x_{ij})^2 / N \quad (1)$$

$$\bullet \text{ JKT} = \sum_i \sum_j x_{ij}^2 / N - \text{FK} \quad (2)$$

$$\bullet \text{ JKK} = (\sum_i x_{1i}^2 / n_1 + \sum_i x_{2i}^2 / n_2 + \sum_i x_{3i}^2 / n_3 + \dots) / k - \text{FK} \quad (3)$$

To test whether  $H_0$  is accepted or rejected, it is necessary to compare the calculated F-value (= CEC / CLC) with the F-table with the desired real level ( $\alpha$ ) and degrees of freedom  $v_1 = (k-1)$  and  $v_2 = (Nk-2)$ .  $H_0$  is accepted if the F-count is smaller or equal to the F-table.

## 3. Results and discussions

Analysis of differences in the use of labor in the area of <1 ha and land area> 1 ha at each stage of irrigated rice farming. The area of land can affect the amount of labor used to manage irrigated rice farming both laborers in the family and workers outside the family (wages). However, some of the data show that the area of land does not affect the amount of labor used. The data can be seen in table 1.

**Table 1.** Analysis of differences in the use of labor in land area <1 and land area> 1 ha at each stage of paddy farming in Mulyasri Village

Farm activity	Land area	
	<1 HOK/Ha	>1 HOK/Ha
Land management	39.91	15.22
Seeding	7.59	0.92
Planting	4.07	1.27
Stitching	18.22	11.62
Fertilization	5.84	0.91
Pest control	7.44	4.14
Harvest	7.13	1.99
Post-harvest	5.33	9.50

Based on table 1, it can be tested using the following formula to determine the effect of using labor with the area of land owned by the respondent farmers.

$$FK = \sum_i \sum_j (x_{ij})^2 / N$$

$$= (141,10)2/16$$

$$= 1.244,33$$

$$JKT = \sum_i \frac{\sum_j x_{ij}^2}{N} - FK$$

$$= (13,912+7,592+4,072+\dots+9,502) - 1.244,33$$

$$= 2.468,96 - 1.244,33$$

$$= 1.404,64$$

$$JKK = (\sum_i \frac{x_{1i}^2}{n_1} + \sum_i \frac{x_{2i}^2}{n_2} + \sum_i \frac{x_{3i}^2}{n_3} + \dots) / k - FK$$

$$= (55,132+8,512+5,342+29,842+2+6,752+11,582+9,122)2-1.404,64$$

$$= 2.256,72 - 1.404,64$$

$$= 1.012,39$$

If seen from the calculation results above, we get the results as follows:

**Table 2.** Analysis of The Amount of Squares, Degrees of Freedom and Mean Squares

Source	Amount of squares	Degrees of freedom	Mean squares	F-value
Column	1012.39	7	144.63	2.58
Residual	392.34	7	56.03	
Total	1404.64	15		

The F-table for the 5% real level with free degrees (2.76) is equal to 2.71 and because the value of F-count <F-table then Ho is rejected or there is a difference in the use of labor between land area <1 Ha and land area> 1 Ha. This is because respondent farmers who have a tract of land less than 1 Ha and respondent farmers who have a land area of more than 1 Ha prefer to use labor that takes into account the area of land they have. The more land owned by farmers, the more use of labor will become. Thus, the farmers want to be more efficient in managing their farming so that it can reduce the amount of time needed for the respondent farmer's farming process.

#### 4. Conclusion

The use of labor based on the area of land in Mulyasri Village, Tomoni Subdistrict, East Luwu Regency, South Sulawesi has a difference in the use of labor on land area less than 1 Ha and also on land area of more than 1 Ha, this is because the F-count <F-table then  $H_0$  is rejected or there is a difference in labor use between land area < 1 Ha and land area > 1 Ha.

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