

Level of work day (human, animal, and machine) at each stage of rice farming in irrigated rice fields

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Submission date: 01-Apr-2021 07:54PM (UTC+0700)

Submission ID: 1548169680

File name: alam_2020_IOP_Conf._Ser.__Earth_Environ._Sci._486_012031.pdf (259.83K)

Word count: 1892

Character count: 9173

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To cite this article: M Salam *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **486** 012031

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Level of work day (human, animal, and machine) at each stage of rice farming in irrigated rice fields

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Abstract. The purpose of this study was to analyze the outpouring of labor (human, animal and machine) used at each stage of 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 method used in this study was interviews and questionnaires. The data analysis method used in this research was a quantitative descriptive method. This research was conducted from October 2018 to November 2018. The results of this research indicated that the use of human labor (men) amounted to 82.94 HOK/Ha (58.78%) HOK/Ha, the use of female labor was 5.08 HOK/Ha (3.60 %) HOK/Ha and it is less than the use of human labor (men) and also machine labor amounted 53.08 HOK/Ha (37.62%) HOK/Ha.

1. Introduction

The agricultural sector has a vital role in the Indonesian economy. This is because the agricultural industry functions as a basis for economic development. This situation requires government policies to adjust the farm sector to the conditions and developments that occur in the field in overcoming various problems relating to the welfare of the nation.

In farming, there is one that is needed to help develop agriculture, one of which is labor used to manage the agriculture. Labor is one of the factors whose role cannot be separated from agriculture itself, especially to increase agricultural productivity [1,2]

Labor as well as being a factor of production, it is also a source of production activities. The consumers receive the income from the production process. If they get a decent income in the form of wages or salaries, the production process can lead to a useful source of demand regarding goods and services in economic development. The workforce itself is the main asset that is the planning and active actor of each activity or business. They have thoughts, feelings, desires, educational status and background, age, gender, not like machines, money, and materials that are passive and can be controlled and fully regulated in supporting the achievement of a goal [3,4].

Every agricultural business requires labor. Therefore, the use of labor is expressed by the amount of labor consumed. Usually, a large-scale agricultural industry will use labor within or outside the family. Furthermore, the employment analysis also need differences workforce between men, women, children, livestock and machinery. It is due to the difference in the types of stages work in the agricultural business. Employment analysis also makes it easier to compare labor usage. It is necessary to standardize the unit of labor, which is usually called the HOK (Daily Workers). In general, the use



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of working hours or workdays is considered to meet the needs. It can be assumed that 8 hours of work is equal to one working day [4].

According to Suratiah[6], the source of labor in farming is divided into a) labor in the family (family labor), that is, all workers in the family, whether human, livestock or machine power, b) hired labor outside the family (hired labor), namely labor originating from outside the family either human, livestock or machine power.

Units of labor in farming are divided into a) man's workday (HKP) for workers issued by one adult male per day in farming activities, b) women workdays (HKW) are workers released by one adult woman per day in farming activities the value is equivalent to 0.8 HKP, c) child's working day (HKA) is a labor issued by a child per day whose value is equivalent to 0.5 HKP, d) animal's working day (HKT) is labor issued by one head livestock (buffalo, ox/cow) per day with a value equivalent to 5 HKP, e) machine workday (HKM) is labor issued by one machine unit which is equivalent to 25 HKP per day of its use in farming activities.

2. Methods

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

The population in this study was rice farmers. The population was 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. Thus, sampling is done by simple random sampling taken between 10% -15% or more. Based on this matter, the number of respondents of rice farmers was 32 irrigated rice farmers.

The data collected in this study consisted of two types; a) primary data which 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 which was data obtained from the village office, Central Bureau Statistics, reading material, literature, and documents that are strictly related to this writing.

Data collection techniques used in this study; a) structured Interview which is a data collection technique 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 which is a list of questions about the problem that you want to study to get the information required by the researcher. The data obtained from the field were tabulated then continued with mathematical calculations and explained descriptively in the discussion using data analysis with the following formula:

$$HOK = \frac{\text{Number of labor} \times \text{Workdays} \times \text{Work hours} \times \text{Variables}}{\text{Standard business hours (8 hours)}} \quad (1)$$

Variable :

- Woman = 0.8
- Child = 0.5
- Male = 1
- Engine = 3
- Livestock = 5

3. Results and discussions

In this study, the analysis of labor usage was per hectare and per season on paddy farming. Human resources are one of the most important factors that cannot even be separated from an organization either an institution or a company. Human resources are also the key to the success of a business. In essence, human resources can be in form of people who are employed as movers or thinkers to achieve the desired goal in the business.

In analyzing employment, especially in agriculture, the use of labor can be expressed by the amount of labor that is used by farmers. The amount of outpoured labor can be calculated and measured using HOK (Workers' Day) which is equivalent to 8 work hours equal to one workday. Conversion of the amount of labor spent by one worker is 1 for men, 0.8 for women, 0.5 for children, and 3 for machines. The use of labor in lowland rice farming in Mulyasri Village, Tomoni District, East Luwu Regency, South Sulawesi can be seen in table 1.

Table 1. Employment of respondents' farmers per hectare per planting season in Mulyasri Village, Tomoni District, East Luwu Regency, South Sulawesi, 2018

Activity	Use of labor					
	T.K.D.K (HOK)			T.K.L.K (HOK)		
	Men	Women	Machine	Men	Women	Machine
Land management	6.00	0.00	0.00	13.49	0.00	35.64
Seeding	7.85	0.00	0.00	0.66	0.00	0.00
Planting	0.25	0.00	0.53	0.84	3.34	0.38
Breeding						
Stitching	28.10	1.74	0.00	0.00	0.00	0.00
Fertilization	6.17	0.00	0.00	0.58	0.00	0.00
Control of plant pest organisms	8.40	0.00	1.36	1.82	0.00	0.00
Harvest	0.00	0.00	0.00	5.02	0.00	4.10
Post-harvest	0.00	0.00	0.00	3.76	0.00	11.07
Total	56.77	1.74	1.89	26.17	3.34	51.19

Where:

- T.K.D.K: Labor in the family
- T.K.L.K : Outside the family workforce

Based on table 1, the researchers obtained the data needed; the use of human labor (men) is 82.94 HOK/Ha (58.78%) while the use of female labor is 5.08 HOK/Ha (3.60%). It is less than the use of human labor (men) and also machine labor by 53.08 HOK/Ha (37.62%) HOK/Ha.

The total use of labor in rice farming in Mulyasri Village, Tomoni District, East Luwu Regency, South Sulawesi in one planting season is 141.10 HOK/Ha. The use of a larger workforce is the use of human labor, especially male workers when compared to the use of female workers and machine workers.

4. Conclusion

The use of human labor (Men) is 82.94 HOK/Ha (58.78%) while the use of female labor is 5.08 HOK/Ha (3.60%). It is less than the use of human labor (men) and machine labor at 53.08 HOK/Ha (37.62%). The use of male workers and machine labor is more needed for the farming process to facilitate the process of increasing productivity.

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