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Analysis of food Security in Rainfed Lowland Rice Farmer Household in Balandatu Village, Tanakeke Islands Subdistrict Takalar Regency

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Abstract

This study aimed to determine the farming income, food and non-food expenditures, and the level of food security of rainfed lowland rice farmer households in Balangdatu Village, Tanakeke Islands Subdistrict, Takalar Regency.

The population in this study consisted of all rainfed lowland rice farmers in Balangdatu Village, Totaling 364 farmers. The sample was selected using simple random sampling. It is referred to as "simple" because the sample was taken randomly from the population without considering any strata. A total of 15% of the population, or 52 respondents, were selected as the research sample.

The results of the study showed that ; (i) the average farming income from rainfed lowland rice in Balangdatu Village was IDR 23,029,028.00; (ii) food expenditure was about IDR 11,049,616.00 per household per season (54.50%), while non-food expenditure was IDR 9,222,597.00(45.50%). This indicates that food expenditure is greater than non-food expenditure; (iii) the level of food security among the rainfed lowland rice farmer households in Balangdatu Village categorized as food secure.

Keywords: Farming, Rainfed, Income, Food Security

INTRODUCTION

The agricultural sector is one of the few sectors that has a significant impact on the Indonesian economy, serving as the foundation of national development, driving economic growth, and providing jobs. Furthermore, the agricultural sector is a key pillar in advancing national prosperity due to its impact on consumption and the food needs of the majority of Indonesia's population.

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Rice is one of the most important grains for human consumption worldwide. It contributes 75 percent of the daily calorie intake of people in these Asian countries. More than 59 percent of the world's population depends on rice as a primary source of calories. Given its role as a primary food commodity for the Indonesian people, achieving adequate national rice production is crucial as a factor influencing national food security, leading the government to continue expanding rice fields.

Rice fields are a type of agriculture practiced in wet areas and require a lot of water. These include irrigated rice fields, rain-fed rice fields, lowland rice fields, and tidal rice fields. The rice fields discussed in this study are rain-fed rice fields, where the water used to irrigate the rice fields relies on rainwater. Rain-fed rice fields, unlike irrigated rice fields, can provide sufficient water but depend on the amount of rainfall.

RESEARCH METHOD

This research involves several steps to answer the questions and serve as analytical steps/methods to achieve the research objectives. The analysis used in this study is as follows :

1. Income is the difference between revenue and all production costs. Income includes gross income (total revenue) and net income. Gross income is the total value of agricultural commodity production before deducting production costs..

   Pd = TR – TC

   Where : Pd = Agricultural Business Income

   TR = Total Revenue

   TC = Total Cost

2. 2. Meanwhile, total household expenditure can be determined by calculating food and non-food expenditure. The formula used is :

   TP = Pp + Pn

   Dimana :

   TP = Total expenditure of farmer households

   Pp = Food expenditure

   Pn = Non-Food Expenditure

   To determine the indicator of the level of food security, it can be measured using the household expenditure share approach, namely with the following equation :

   Household Food Expenditures

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3. PPP = $\frac{\text{Total Expenditures}}{\text{Total Expenditures}} \times 100\%$

Information:

PPP = Share of Food Expenditure

To find out the indicators of the level of food security, it can be approached using the following criteria :

a) Food expenditure share < 60% of total expenditure is a food secure household
b) The share of food expenditure > 60% of total expenditure is in food insecure households (Arifin et al., 2011).

RESULT

Income from Rainfed Lowland Rice Farming

Farming income is the difference between farm income and total farm costs, including variable costs and fixed costs. Meanwhile, income is the value of production generated from a business. The amount of income from a production process can be determined by multiplying the amount of production by the price of said production (Sorkarwati, 2006).

Costs are all funds used in carrying out a farming business activity. Production costs are all expenses to finance the production process in a business. The costs calculated in this research are the costs incurred during one planting season and then calculated which are included in fixed and variable costs.

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Tabel 1. Average Production Costs and Income per Farmer in Rainfed Lowland Rice Farming

Desription	Amount (Unit/Kg)	Price for Hectare (Kg/Ha)	Mark (IDR)
1. Production	5.562	5.555	30.896.910
2. Variable Costs			
• Seed (Kg)	29,57	1.888,89	558.544,48
• Urea (Kg)	255,34	2.888,9	737.651,73
• TSP (Kg)	131,4	3.000	394.200
• NPK (Kg)	193,4	3.111,1	601.686,74
• Labor			
- Land Preparation (HOK)	3,53	88.888,9	313.777,817
- Plant (HOK)	2,23	111.111,11	247.777,78
- Maintenance (HOK)	6,67	88.888,9	592.888,97
- Harvest (HOK)	4,45	100.000	445.000
3. Fixed Costs	-	-	472.937,78
• Tool Depreciation (IDR)	-	-	234.722,23
• Land Tax (IDR)	-	-	23.029.028
4. Income (IDR)			

Source: Primary data after processing, 2025.

Table 1 shows that the average production value of rain-fed rice farming in Deisa Balangdatu is IDR 30,896,910.00. Variable costs exceed fixed costs. The most frequently required variable costs are urea and NPK fertilizers. Meanwhile, the largest labor cost is maintenance. Fixed costs include average equipment depreciation of IDR 472,937.78, land and building tax of IDR 234,722.23, and revenue of IDR 23,029,028.00.

Food and Non-Food Expenditure

Household expenditure is the amount of money (IDR) spent by a household to meet living needs, both food and non-food. Household expenditure of rain-fed rice

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farmers in Deisa Balangdatu allocates their income to meet basic food and non-food needs. Each consumption expenditure has its own proportion according to the level of income earned by the farming household. This can be seen in the following table

Tabel 2. Food Expenditure of Rainfed Rice Farmers

No	Food	Marki (IDR/MT)	Percentagei (%)
1	Rice	3.166.154	27,46
2	Sugar	633.077	5,49
3	Cooking oil	501.923	4,35
4	Side dishes	2.355.769	20,43
5	Drink	1.256.078	10,89
6	Cigarette	2.180.488	18,92
7	Snacks	1.436.538	12,46
Amount		11.530.027	100

Source: Primary data after processing, 2025

Based on Table 2 Food Production of Rainfed Rice Farmers in Deisa Balangdatu, the largest food production is Rice at IDR. 3,166,154.00 with a price of 27.46%, while the smallest food production is Cooking Oil at IDR. 501,923.00 with a price of 4.35%.

Tabel 3. Non-Food Expenditure of Farmers, Rice, and Rainfed Rice Fields

No	Non Food	Marki (IDR/MT)	Percentagei (%)
1	Education	2.000.000	17,33
2	Health	302.404	2,62
3	Electricity	240.000	2,08
4	Tax	211.250	1,83
5	Sanitationi	540.300	4,68
6	Clothes	1.744.231	15,1
7	Fuel	654.694	5,67
8	Sociial	1.986.538	17,2
9	Recreationi	1.560.000	13,5
10	Credit	513.529	4,45

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11	Other	1.794.231	15,54
Amount		11.547.177	100

Source: Primary data after processing, 2025

Based on Table 3 of Non-Food Output of Rainfed Rice Farmers in Deisa Balangdatu, the largest Food Output is IDR 2,000,000.00 with a price tag of 17.33% while the smallest food output is Tax of IDR 211,250.00 with a price tag of 1.83%.

Household Food Security

Household food security can be measured using various indicators. The indicators that can be used from this research are:

1) A food secure household is one where the proportion of food expenditure is low (< 60 percent of household expenditure).
2) Households are short of food, namely if the proportion of food expenditure is low (>60 percent of household expenditure)

Tabel 4. Presentation on Household Food Security of Rice Farmers in Rainfed Rice Fields

NO	Description	Amount (Person)	Percentagei (%)
1	Food Security (PPP < 60%)	47	90,38
2	Food Insecure (PPP > 60%)	5	9,62
Amount		52	100

Source: Primary data after processing, 2025.

From table 4. above, it can be seen that the level of food security of rain-fed rice farming households in Deisa Balangdatu, Keipulau Tanakeikei District, Takalar Regency, which is food secure is 47 respondents or 90.38% and which is not food secure is 5 respondents or 9.62%. This means that the level of food security of rain-fed rice farming households in Deisa Balangdatu is Food Secure. Households that are said to be food secure are households that do not experience hunger or are threatened with hunger.

CONLUSION

1. The income of rain-fed rice farmers in Balandutu Village, Tanakeke Islands District,

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Takalar Regency is IDR 23,029,028.00/MT.

2. Household food expenditure for rain-fed rice farmers is IDR 11,049,616.00/MT, representing 54.50%. Non-food expenditure is IDR 9,222,597.00/MT, representing 45.50%. Food expenditure is greater than non-food expenditure.
3. The household food security level of rain-fed rice farmers in Balangdatu Village, Tanakeke Islands District, Takalar Regency is Food Secure.

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