



Comparative Analysis of Certification Organic and Non-Organic Rice Farming Income in East OKU District

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ABSTRACT

East OKU Regency is the second-largest rice-producing region in South Sumatra, following Banyuasin Regency, with a harvest area of 108,140.86 hectares in 2022. In recent years, the cultivation of certified organic rice has been developed in East OKU, particularly in East Buay Madang District and Belitang II District. These areas began developing organic rice in 2016 and received organic certification from INOFICE in 2020. This study examines the income differences between organic and non-organic rice farmers in East OKU Regency. The research was conducted in January 2024 in East OKU Regency using a survey method and disproportionate stratified random sampling. The sample consisted of 30 organic rice farmers out of 97 and 30 non-organic rice farmers out of 175 in Belitang Mulya District. Data analysis involved using an income equation to calculate farmers' income and the t-student test to determine the income differences between organic and non-organic rice farmers. The results show that the income of certified organic rice farmers in East OKU Regency is IDR 28,791,050 per hectare per year, or IDR 48,758,30 per hectare per year, which is significantly higher than the income of non-organic rice farmers, who earn IDR 11,334,887 per hectare per year, or IDR 24,574,281 per hectare per year. The difference in income between certified organic and non-organic rice farming in East OKU Regency is IDR 17,456,163 per hectare per year, or IDR 24,184,022 per hectare per year.

1. INTRODUCTION

1.1. Research Background

The need for food consumption by the Indonesian people nationally continues to increase every year in line with the increase in the population of Indonesia, which increases every year, especially the need for rice agricultural products. Indonesia, as a country with a large population, faces challenges in meeting the population's food needs. Meanwhile, the reality is that our farmers' income is still very low [1]. Therefore, food security policies are the main focus of agricultural development. Several food policies, apart from policies regarding the use of land and water resources, also include efforts to increase rice production with various varieties of rice that have high production [2]. Many organic rice varieties have been developed related to health and food safety. Apart from being believed to be healthier, organic rice also has a higher selling value.

East OKU Regency has the second-largest rice production in South Sumatra after Banyuasin Regency, with a harvest area of

108.140,86 Ha in 2022. East OKU Regency is also one of the food barns in South Sumatra Province (Sumsel), which continues to make efforts to increase rice production and productivity to realize national food security [3].

Organic rice is rice that is cultivated organically or without using chemical fertilizers, insecticides or chemical pesticides, an environmentally friendly cultivation method by using organic materials such as compost, pesticides from plants or using self-processed organic fertilizers from leaves or fruits. Organic rice in East OKU has been developed in the past few years. Likewise in East Buay Madang District and Belitang II District, which started developing organic rice starting in 2016 and received organic certification from INOFICE in 2020 in the Tani Sejahtera group and in 2022 in the Sri Rejeki Farmer group. There are 2 farmer groups, namely the Tani Sejahtera group, which consists of 6 farmers and the Sri Rejeki Farmer group, which consists of 8 organic farmers and 2 farmers with conversion land status by cultivating the production of certified organic rice with 99,550 m² of land, so this farmer group produces rice. organic rice is named TUKU O organic rice and ORTESA organic rice (Organic Tegalsari Supports Universal Health). With the certification



obtained, you can be sure that this type of rice is very good for the body because it is cultivated organically so it is not contaminated with chemicals at all. There are 3 types of organic rice produced, namely white rice, red rice and black rice [4].

The price of organic rice, which is higher than non-organic rice, means that many East OKU rice farmers have now switched to growing organic rice, of course because the income from growing organic rice is expected to be higher than non-organic rice. This has made many farmers in East OKU Regency interested in growing organic rice, especially certified organic rice. In line with this research, [5] stated that income from organic rice farming is higher than non-organic rice farming. Income from organic rice farming is higher than non-organic rice farming. Organic rice farming has a higher level of efficiency compared to non-organic rice.

1.2. Literature Review

People generally recognize the term organic rice if the rice is determined by an institution that guarantees that the rice was cultivated organically. So even though an agricultural commodity has been cultivated organically but has not received guarantees from a certification body, the commodity cannot yet be said to be an organic product [6].

Organic compounds are compounds that can be broken down by decomposing organisms (bacteria, fungi, mold and other microorganisms). By borrowing the term organic compounds [7], organic cultivation is a technique for growing agricultural commodities using materials that decomposing organisms can break down. The characteristics of organic cultivation are:

- Do not use pesticides, insecticides and fertilizers made from synthetic or artificial chemicals.
- Soil fertility levels are maintained by means of "natural" processes, such as planting cover crops, using composted manure, and utilizing agricultural waste (plants).
- Crop rotation to avoid the development of pest and disease cycles.
- Utilize the food chain and non-chemical materials to control pests, weeds and diseases. For example, semi-rotten straw suppresses weeds and beneficial insects to prey on pests [8].
- Organic rice certification is carried out by farmers so that they then sell their rice to the market. The following are things you should know to get an organic rice certificate
- The Organic Certification Body has certain "strict" standards regarding organic production and processing or cultivation
- You should create and submit an annual activity plan that shows that you are eligible and meet the production and processing requirements of the Organic Certification Agency [9].
- Your product can be certified as "organic" if the product is produced from land that has been free from prohibited substances (for example, pesticides, insecticides and artificial chemical fertilizers) for three years before certification.
- The toughest challenges in rice cultivation are generally related to nutrient management and controlling weeds, pests and diseases [10].

1.3. Research Objective

This study aims to examine the differences in income of certification organic and non-organic rice farmers in East OKU Regency

2. MATERIALS AND METHODS

The research was carried out purposively in East OKU Regency, considering that East OKU Regency is a food storage area or one of the largest rice producing areas in South Sumatra. East OKU Regency is also a center for organic rice cultivation in South Sumatra. The research was carried out in East OKU Regency at January 2024. The research method used was the survey method and the sampling method used was the disproportionated stratified random sampling method. The sample of organic rice farmers was taken from 30 people from 97 farmers and the sample from non-organic rice farmers was taken from 30 people from 175 rice farmers in Belitang Mulya District.

Research data analysis uses an income equation to calculate the income of organic and non-organic rice farmers. Income is obtained from the difference in farmers' total income minus the cost incurred for rice farming with the following equation :

$$Pd = P - Bb$$

Where :

Pd = income of organic or non-organic paddy farmer (Rp/ha/year)

P = revenue of organic or non-organic paddy farmer (Rp/ha/year)

Bb = Cost of paddy farming (Rp/ha/year)

Data analysis to calculate the difference in income of organic and non-organic rice farmers using the t-student test, with the following equation :

$$t_{hitung} = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}} \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where :

t_{hitung} = Calculated t Count

X1 and X2 = Average prices of the samples being compared

S1 and S2 = Standard deviations compared

n_1 and n_2 = Size of the samples being compared

Test decision criteria:

- If t-count \leq t-table, then H_0 is accepted (reject H_1), meaning there is no difference in income between organic and non-organic rice farming.

- If t-count $>$ t-table, then H_0 is rejected (accept H_1), meaning there is a difference in income between organic and non-organic rice farming.

3. RESULT AND DISCUSSION

3.1.1. Analysis of Farmer Income

The research results show that the average rice production from organic rice farming is 3,459 kg/ha/year or 5,559 kg/ha/year. The average price received by organic rice farmers is Rp.14,000/kg, so the average income obtained from organic rice farming is IDR. 48,421,296/ha/year or Rp.77,824,283/ha/year. With an average

production cost of Rp.19,630,246/ha/year or Rp. 31,550,371/ha/year, so that the average organic rice farming income is Rp.28,791,050/ha/year or Rp.48,758,303/ha/year.

Meanwhile, the average production of non-organic rice farming is 2,317 kg/ha/year or 5,023 kg/ha/year. The average price received by non-organic rice farmers is Rp.11,000/kg, so the average income obtained from non-organic farmers' farming is Rp.25,485,320/ha/year or Rp.55,252,727/ha/year with the average production cost of non-organic rice farming being IDR. 14,150,434/ha/year or Rp.30,678,447/ha/year, obtained an average non-organic rice farming income of Rp.11,334,887/ha/year or Rp. 24,574,281/ha/year. The results of income analysis calculations show that organic rice farming is IDR 48,758,303/ha/year, which is greater than non-organic rice farming ha/year IDR 24,574,281/ha/year; this is because rice production and the price of organic rice are greater than the price non-organic rice.

3.1.2. Comparative Analysis of Organic and Non-Organic Rice Farming Income

The research results show that the average income from organic rice farming is IDR. 48,758,303/ha/year, while the average non-organic rice farming income is Rp.24,574,281/ ha/year. This means that the income difference between organic and non-organic rice farming is IDR 24,184,022/ ha/year. Next, to find out the t-test value of the difference in income between organic rice farming and non-organic rice farming, it can be calculated using the t test formula in the SPSS series 26 program to obtain the following results.

Table 1. "Paired Samples Statistics"

Pair	Organic	Mean	N	Std. Deviation	Std. Error Mean
		1	Non-Organic	48758302,88	16
		24574281,69	16	2479540,83	619885,209

This output summarises the descriptive statistics for the two samples studied: the income of organic and non-organic farmers. The average income (mean) for organic farmers is IDR 48,758,302.88, while the average income for non-organic farmers, using non-organic fertilizer, is IDR 24,574,281.69. The number of respondents in the research sample consisted of 16 organic farmers and 16 non-organic farmers.

The deviation (standard deviation) for organic farmers is IDR 6,407,720,714, and for non-organic farmers is IDR 2,479,540,838. Lastly, the Standard Error Mean value for organic farmers is IDR 1,601,930,179 and for non-organic farmers, IDR 619,885,209. Because the average income value for organic farmers is IDR 48,758,302.88 > the income of non-organic farmers is IDR 24,574,281.69, then this means that descriptively there is a difference in the average income between organic farmers and the income of non-organic farmers.

The research results also show that the calculated t value is 12.020 > t table 2.131, so as is the basis for decision making above, it can be concluded that Ho is rejected and Ha is accepted. So it can be concluded that there is a real difference between the income of organic farmers and non-organic farmers, which means that there is an influence of the use of organic fertilizer and non-organic fertilizer on the income of farmers in East OKU Regency.

The research results show that the income of farmers who use organic fertilizer and the income of farmers who do not use organic fertilizer in East OKU Regency, shows that there is a difference in the income of organic farmers and non-organic farmers per cultivated area per year (2 planting seasons). The average income of organic farmers from 16 samples shows higher income than non-organic farmers (Rp/ha/year) because organic farmers do not use chemicals to control weeds, pests and diseases, thereby reducing variable costs.

4. CONCLUSION

The research results show the following: a). The income of certified organic rice farming in East OKU Regency is IDR 28,791,050 per hectare per year, or IDR 48,758,303 per hectare per year, which is higher than the income of non-organic rice farming, which is IDR 11,334,887 per hectare per year, or IDR 24,574,281 per hectare per year; b). The income difference between certified organic and non-organic rice farming in East OKU Regency is IDR 17,456,163 per hectare per year or IDR 24,184,022 per hectare per year.

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