Analysis of organic rice farming income in Kulisusu North Buton District, Southeast Sulawesi

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Abstract. This study aims to determine and analyse the organic rice farming income level the benefit cost ratio between and inhibiting factors in the production process in Kulisusu Village North Buton district. Data were collected through purposive sampling with a total of 40 respondents of organic rice farmers. The results show that organic rice farming income is IDR 28,122,184 or average of IDR 703,054.6 per ha/ harvest season. The return cost ratio (R / C ratio) of 3.65 indicates that R / C > 1, so it is said that organic rice farming is profitable or feasible to be developed or cultivated. Inhibiting factors for organic rice farming, namely capital, seeds, vegetable pesticides, it is expected that the inhibiting factors can be minimized so that farmers can get higher income.

1. Introduction
In addition, rice has become part of the life of Indonesian society, so it cannot be denied that this commodity has also influenced the political order and national stability. Apart from being the staple food of more than 95 percent of the population, rice has also become the source of livelihood for most of the farmers in rural areas. Currently, rice farming is able to provide employment for around 20 million farmer households [1].

Besides rice, in this case rice is still considered as the dominant strategic commodity in the Indonesian economy. This matter this is because rice is still the staple food of most Indonesians [2]. Organic agriculture is an effort to develop agribusiness by increasing land productivity by utilizing local potential, namely natural and human resources. According to [3], organic farming is part of the latest efforts to promote a farming system that is both socially and ecologically sustainable.

The development of organic agriculture in Indonesia does not yet require a new institutional structure because this system is almost the same as intensive agriculture as it is today. Farmer institutions such as farmer groups, cooperatives, associations or corporations are still very relevant. However, the most important thing is that the farmer institution must be able to strengthen the bargaining position of the farmers [4].

Organic farming activities are carried out by farming communities in various regions in Indonesia, including in North Buton Regency, who plan an organic rice program that is fully supported by the central government, especially the Minister of Agriculture. The reasons for choosing organic rice as a leading policy are due to environmental control, public health and market considerations. The price of organic rice is also higher than non-organic rice.
North Buton Regency is one of the regencies in Southeast Sulawesi that prioritizes development in the agricultural sector. Data from the North Buton [5], states that the agricultural sector is the sector that provides the largest contribution to the formation of North Buton Regency GRDP, which supplies around 37.65 percent.

The high demand for organic food should be an opportunity for organic rice farmers in North Buton Regency to try to maximize organic rice production, in this case cultivating organic rice. The large number of demands for organic rice will make it easy to sell organic rice crops and the high price of organic rice. Organic rice production that is sold will affect the income of organic rice farmers. Research this aims to analyse the income of organic rice farming, analyse the R / C ratio and identify inhibiting factors in the production process.

2. Materials and methods
The research was conducted in Kulisusu Subdistrict, North Buton Regency. The sampling technique was purposive sampling as many as 40 organic rice farmer respondents. The types of data used in this study are primary data and secondary data. Data analysis tools namely: Analysis of Income.

Costs incurred by farmers in one planting period consist of fixed costs and variable costs. Fixed costs are defined as costs incurred that do not depend on the size of the output produced. Variable costs are defined as costs that are small and large are influenced by the output produced. These two costs add up to give the total cost.

To calculate all costs, the formula is used [6]:

$$\text{TC} = \text{FC} + \text{VC}$$  \hspace{1cm} (1)

Information:
TC = Total Cost
FC = Fix Costs
VC = Variable Costs

The income received by the farmer is the product of the product multiplied by the price of the product received by the farmer. While the farmer acceptance structure is the result of a reduction in total revenue with the total costs incurred by farmers in one planting period. To calculate the amount of farmer income used the formula [7]:

$$\pi = \text{TR} - \text{TC}$$  \hspace{1cm} (2)

Information:
\(\pi\) = Income of farmer
TR = Total Revenue
TC = Total Cost

Analysis of organic rice farming revenue or income in the Kulisusu North Buton, the R / C ratio (Revenue-Cost ratio) is used to determine the comparison of the level of profit and cost of farming:

$$\text{R/C ratio} = \frac{\text{Revenue}}{\text{Cost}}$$  \hspace{1cm} (3)

If the R / C ratio > 1 then this farm is profitable, while the R / C ratio < 1 this farm is detrimental because the costs incurred are greater than the revenue obtained. R / C ratio = 1 farming is at the break event point. To determine the inhibiting factors of the production process, a descriptive qualitative method was used.
3. Results and discussion

3.1. Analysis of income
The total cost of production or more known as the total cost (TC) is the total costs that must be incurred by the manufacturer relating to the production process, as the main activity to produce a product [6].

Table 1. Fixed costs of organic rice farming in Kulisisu Village

| No | Description                | Total (IDR)/ha/season |
|----|----------------------------|-----------------------|
| 1  | Land tax                   | 873,600               |
| 2  | Depreciation of equipment  | 718,325               |
|    | Capital interest           | 257,219               |
| 3  | Total                      | 1,849,144             |

Table 1 shows the fixed cost of organic rice farming, namely IDR 1,849,144, which consists of land tax, depreciation of equipment, and capital interest. Costs in an economic sense are all materials that must be borne to provide goods to be ready for use by consumers. Then in table 2 describes the variable costs. Variable costs are types of costs whose size depends on the size of the product produced.

Table 2. Variable costs of organic rice farming in Kulisisu Village

| No | Description    | Total (IDR)/ha/season |
|----|----------------|-----------------------|
| 1  | Seeds          | 316,837               |
| 2  | Organic fertilizer | 1,714,600             |
| 3  | Labour         | 5,780,500             |
| 4  | Organic pesticide | 919,735              |
|    | Total          | 8,731,672             |

The variable costs in this study are all costs for seeds, organic fertilizer, labour and organic pesticides. Labour cost is the largest cost incurred by farmers, namely IDR 5,780,500 because the labour used is based on the number of workers and the type of work done, namely cultivating the land, planting, caring for crops and harvesting. In organic rice farming, the labour that is done is labour within the family and labour outside the family.

It is in line with the research result [8], that labour cost is the biggest cost in organic rice farming. To obtain the total cost of production for organic rice farming, the fixed costs and variable costs are added together, as in table 3 below.

Table 3. Total cost of organic rice in Kulisisu Village

| No | Description    | Total (IDR)/ha/season |
|----|----------------|-----------------------|
| 1  | Fixed cost     | 1,849,144             |
| 2  | Variable cost  | 8,731,672             |
|    | Total          | 10,580,816            |

Table 3 shows the amount of production costs incurred by farmers from planting to harvest. the total cost of production is IDR 10,580,816. The amount of production costs is quite a large amount, considering that farmers have great needs for their families.
Table 4. Income of organic rice in Kulisusu Village

| No | Description       | Total (IDR)/ha/season |
|----|-------------------|-----------------------|
| 1  | Amount of production | 6,790                |
| 2  | Price             | 5,700                |
| 3  | Revenue           | 38,703,000           |
| 4  | Total cost        | 10,580,816           |
| 5  | Income            | 28,122,184           |
| 6  | Average income    | 703,054.6            |

Income is the difference between revenue and total costs incurred, while revenue is the result of multiplying the selling price and the number of products. Based on the research results, the selling price of the product at the time of the research is IDR 5,700 per kg, Meanwhile, the average yield of paddy rice per hectare in one production process for organic rice farming was 6,790 kilograms of dry grain, so that the income was IDR 28,122,184 or average income is IDR 703,054.6.

It is in line with the research results [8] that the amount of revenue depends on the amount of organic rice produced at the current price. It is hoped that the price of organic rice will always be stable so that income can increase and organic rice farmers can prosper.

3.2. R / C ratio analysis
The ratio between revenue and total cost is an R / C ratio of 3.65, meaning that every IDR 1 spent will generate IDR 3.65. The return cost ratio (R / C ratio) of 3.65 indicates that R / C > 1, so it is said that organic rice farming is profitable or feasible to be developed or cultivated.

3.3. Inhibiting factors in the production process of organic rice farming
There are several advantages of application of organic agriculture, especially for farmers. First, with implementing organic farming, then soil balance is maintained because it is not the use of factory-made fertilizers and pesticides or other chemicals. Second, without the use of fertilizers and synthetic pesticides will save you operating costs. Third, reduce risk pesticide poisoning as well as people can eat food which is healthy. Fourth, increasing public awareness of health insurance agricultural products will increase the number who want to be paid against the commodities. This will improve farmer welfare. Fifth, there is independence of farmers by utilizing local natural resources in the production process it will be able to support food security.

On the other hand, there are some drawbacks in the application of organic agriculture in of which is sufficient management complicated, takes a long time to be able to see the results, usually requires large amount of money and not avoidable damage in the first place processing with this system. Average land ownership of farmers in Kulisusu Village about 0.50 to 0.75 hectares. They generally have a through inheritance from parents. Few farmers who can own farmland through purchase. Other inhibiting factors are capital, seeds and organic or vegetable pesticides. Limited capital is a problem for farmers to develop their farming because to obtain input they have to spend some money, the way out to get capital, farmers make loans at banks in this case BRI. To obtain seeds, farmers carry out a simple nursery due to limitations in purchasing seeds at a production input shop, while pesticide input, farmers make conventionally using vegetable raw materials or from plants that are believed to be used to eliminate pests and diseases in organic rice.

4. Conclusions
Based on the results of research and discussion, it is concluded as follows: organic rice farming income per harvest season is IDR 28,122,184 or an average of IDR 703,054.6 per harvest season. The return cost ratio (R / C ratio) of 3.65 indicates that R / C > 1, so it is said that organic rice farming is profitable or feasible to be developed or cultivated. Inhibiting factors for organic rice farming, namely capital, seeds, vegetable pesticides, it is hoped that the inhibiting factors can be minimized so that farmers can get higher income.
References

[1] Directorate General of Indonesian Food Plants 2016 _Petunjuk Teknis Fasilitas Pertanian Organik [Organic Farming Facility Technical Instructions]_ (Jakarta: Directorate General of Indonesian Food Plants)

[2] Adiratma E R 2004 _Stop Tanam Padi?: Memikirkan Kondisi Petani Padi Indonesia Dan Upaya Meningkatkan Kesejahteranya [Stop Planting Rice?: Improve The Condition Of Indonesia Rice Farmers And Upstairs Improve Welfare]_ (Bogor: Penebar Swadaya)

[3] Chouichom S and Yamao M 2010 Comparing opinions and attitudes of organic and non-organic farmers towards organic rice farming system in north-eastern Thailand _Journal of Organic System_ 5 1 p 25-35

[4] Mayrowani H 2012 Development of organic agriculture in Indonesia _Forum Research Agro Economic_ 30 2 p 91-108

[5] Statistic of North Buton Regency 2018 _North Buton Regency_ (Southeast Sulawesi: Statistic of North Buton Regency)

[6] Sukirno S 2009 _Mikroekonomi: Teori Pengantar [Microeconomics: An Introductory Theory]_ (Jakarta: Raja Grafindo Persada)

[7] Soekartawi 2003 _Teori Ekonomi Produksi, Dengan Pokok Bahasan Analisis Fungsi Cobb-Douglas Soekartawi [Economic Theory of Production with The Main Discussion Of The Analysis Of The Production Function Cobb-Douglas]_ (Jakarta: Raja Grafindo Persada)

[8] Wihastuti W, Sujaya D H and Hardiyanto 2017 Analysis usahatani padi organik studi kasus pada kelompok tani kelapa herang di Desa Setiawaras Kecamatan Cibalong Kabupaten Tasikmalaya _Jurnal Ilmiah Mahasiswa Agroinfo Galuh_ 3 3 p 388-95

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