THE WELFARE LEVEL OF FARMERS IN THE IMPLEMENTATION OF INTEGRATION SYSTEM OF FARMING RICE AND BEEF CATTLE IN SMALL HOUSEHOLD SCALE IN BUKE SUB-DISTRICT, SOUTH KONAWE DISTRICT

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To cite this article:

Fyka, S.P., M.Si, S., Abdullah, B., Limi, M., Salamah, S., & Fitriaman, F. (2020). The Welfare Level of Farmers in The Implementation of Integration System of Farming Rice and Beef Cattle in Small Household Scale in Buke Sub-District, South Konawe District. *Buletin Penelitian Sosial Ekonomi Pertanian Fakultas Pertanian Universitas Haluoleo*, 22(1), 7 - 11. doi:<http://dx.doi.org/10.37149/bpsosek.v22i1.12063>

Received: May 09, 2020; **Accepted:** June 30, 2020; **Published:** July 23, 2020

ABSTRACT

Integration system is an effort to improve the welfare level of farmers. The objective of this study was to determine the welfare level of farmers as the implementers of integration system of rice and beef cattle. The research method was quantitative descriptive with samples of 25 farmers who applied integration system selected purposively. The data analysis used was the analysis of income and welfare level by using the approach of Southeast Sulawesi Provincial Minimum Wage (UMP) in 2019 and the poverty line of the farmers' families. The results of the study were that the farmers who applied integration system of farming rice and beef cattle had different welfare level, in which 40% of farmers were classified as prosperous because their income from the integration system is greater than the UMP. Meanwhile, the remaining 60% farmers were classified as not prosperous because their income is smaller than the Southeast Sulawesi UMP and the average farmer was above the poverty line in the district of South Konawe.

Keywords: beef cattle; farm rice; integration system; welfare

INTRODUCTION

Farming by combining plants with livestock has become an alternative to rural farmers in an effort to add sources of income, where this model is known as the integration system (Ranaweera et al. (1993). Abdullah (2015) stated that the pattern of this integration system is done by synergizing the output products from plant and livestock which will complement each other. The advantages of implementing this system as revealed by Powell (1994); Joshi and Ghimire (1996) are that the integration system application of rice and livestock will benefit from the supply of livestock animal feed in the form of rice bran and rice straw and the provision of organic fertilizer for farming rice derived from the livestock manure. In addition, the source of farmers' income can be obtained from two components, those are the results of the production of farming rice in the form of rice sales and livestock farm in the form of cattle sales.

The potential of developing an integration system in the South Konawe District is very large. The number of beef cattle in South Konawe is 52,558, while the area of the rice farming area is 26,461 ha with 83,237 tons/ha of rice yield (BPS Southeast Sulawesi, 2019). This certainly will provide enormous opportunities for farmers in developing farming models of integration system of farming rice and beef cattle. The application of a model that integrates farming rice and beef cattle in the village of Silea Jaya still relied more on the potential of local resources and used very simple technology on a household scale. Farmer chose to apply this integration system because of the large risk of failure of one of their agricultural products and also the large production costs that must be incurred, which are the cost of fertilizers and pesticides. Therefore, it causes farmers to look for other alternatives so that the production costs can be reduced so as to increase farmers' incomes because the large production costs of production can affect the income of farmers (Purnomo et al., 2018).

Farmers' expectations by implementing farming integration system which depends on inorganic fertilizers can be reduced (Suriadikarta & Adimihardja, 2001) so as to reduce the production costs.

Some previous research results show that the implementation of the integration system can provide benefits to farmers by increasing their income (Hasiruddin et al., 2015) ; (Ugwumba et al., 2010) ; (Howara, 2004); (Abu et al., 2017).. However, research that specifically discusses the welfare level of farmers of small household scale integration system with small land area and small number of livestock is still lacking. Research on the integration system only focuses on increasing income in businesses that have a large land and livestock potential. Therefore this study aimed to find out how the welfare level of farmers who applied integration system of farming rice and beef cattle on a small household scale.

MATERIALS AND METHODS

The location of this research was Silea Jaya Village, Buke Sub-District. The sample used was as many as 25 people chosen by purposive sampling technique (Rianse, 2012). This research used a quantitative descriptive approach through primary data and gender data. Data analysis was done by using income analysis, in which the welfare analysis was compared to the provincial minimum wage approach (Elmanora et al., 2012) in which the Southeast Sulawesi UMP in 2019 was Rp2,552,014 per month. If the total income of the integrated system farmers is greater than the Southeast Sulawesi UMP, then it is categorized as a prosperous farmer, but if the income of farmers is smaller than the Southeast Sulawesi UMP, then it is categorized as non-prosperous farmer.

RESULTS AND DISCUSSION

Characteristics of Respondents

The characteristics of respondents in this study were based on the age, education, number of family dependents, experience in managing the integration system of farming rice and beef cattle, number of livestock, and land area. The results of interviews with respondents on the characteristics of respondents are presented in the following Table 1

Table 1. Average characteristics of farmer respondents who integrated farming rice and beef cattle

No	Characteristics	Unit	Value
1	Age	Years	45
2	Education	Years	9 (Junior High School)
3	Number of Dependents Family	Families	4
4	System Integration Experience	Years	8
5	Number of Livestock	Cows	4
6	Rice Field Area	Hectare	1

Source: Primary data processed (2020)

The average age of farmers who applied integration system was 45 years. This shows that the age of the respondents was classified as productive. This productive age shows that farmers had the ability to manage their farming fully (Annisa & Lamusa, 2014) by seeking more information and applying technology that can support better farming production capabilities. Farmer education was still low, in which on average only up to junior high school level/equivalent. This would affect the ability to adopt technology for better farming development (Nwaobiala, 2018). The number of family dependents was only 4 people. The experience of farming with an integration system was 8 years, showing that the ability to improve the farm efficiency would be even greater (Sosiawati, 2015). The number of cattle being cultivated was only 4 with the average area of 1 ha. This shows that the integration system of farmers was a small business, where the condition would affect the application of better technology in processing their farming (Agwu et al., 2017).

Cost, Production, Receipts, and Income of Farmers Who Applied Integration System of Farming Rice and Beef Cattle

Farming management requires costs for business operations, both variable, and fixed costs. These production costs will affect the amount of income that will be obtained by farmers. Integration system farming expenditure consists of two types, namely expenditure on farming rice and expenditure on raising beef cattle. The revenue is the multiplication between the price and production amount. The greater the amount of production, the greater the revenue that will be obtained by farmers. Integration system production is obtained from two types, those are farming rice and beef

cattle. The amount of revenue received by farmers determined the amount of income, in which the income was obtained from the difference between the revenue and production costs. The income source of farmers who applied integration system comes from the production of farming rice and livestock product for one year. The amount of income then enables farmers to cover the expenses of family members so that welfare is achieved for the farmers' households. The average production, revenue, and income of farmers in the integration system can be seen in the following Table 2.

Table 2. Average cost of farming, production, prices, revenue and income of farmer who applied integration system

No	Characteristics	Unit	Nilai
1	Cost of rice farming	Rupiah/Year	5.752.099
	Beef cattle farming costs	Rupiah/Year	868.558
2	Lowland rice production	Kg/year	5456,01
	Beef cattle production	Cows/year	2
3	Price of paddy rice	Kg	5.000
	Price of beef cattle	Tail	5.372.000
4	Revenue	Rupiah/Year	34.819.200
5	Income	Rupiah/Year	29.068.731
6	R / C	Ratio	5,26

Source: Primary data processed (2020)

The cost of combined integration system farming was Rp6,620,657/year. This costs came from costs for farming rice which was Rp5,752,099/year and Rp868,558/year. The amount is the same as the results of research conducted by Fyka, et al. (2019). This is because at the time of the research, the prices of the equipment and supplies needed did not change significantly. The cost of managing livestock with an integration system at the research site was very low. This is different from the research conducted by Hasiruddin et al. (2015) which is up to Rp2,540,862/year. This is due to the types of costs such as feed and medicine costs can be reduced by utilizing the product of the farming rice integration system. The income earned was Rp29,068,731/year, where the income from the farming rice sector was Rp27,283,200/year, while from the beef cattle maintenance sector was Rp7,850,000/year with an R/C ratio of 5.26, which means that each additional cost of Rp1,000, it will generate a total of Rp5,260. This is different from research conducted by Basuni et al. (2015) whose R/C ratio was 1.44 because the beef cattle maintenance used farmers' personal materials more such as making pens and others which do not incur costs. This can be seen in the detail of production costs for beef cattle, which is only Rp868,558/year.

The integration system of the farming rice and beef cattle is able to contribute to an increase in income compared to farmers who do not implement the integration system. This can be compared with studies that used wither rice farming or beef cattle only. As in the research conducted by Basuni et al. (2015), which compared those who applied integration system and regular system, in which the regular farmers had income of Rp24,867,500 with an R/C ratio of 1.33. This shows that integration system of rice and livestock is able to provide benefits for farmers in the form of increased income because it can reduce production costs such as food, labor, and fertilizer needs.

Welfare Level

The welfare level of farmers was measured based on the comparison criteria between farmers' income from the integration system and the provincial minimum wage (Elmanora et al., 2012). Southeast Sulawesi provincial minimum wage in 2019 was Rp2,552,014/month. If the farmers' income is greater than the UMP, than the farmers are categorized as prosperous, but if they are below the UMP, they are categorized as not prosperous. Farmer's income from the integration system was Rp29,068,731 per year, or equivalent to Rp2,422,394 per month. So that the welfare level of farmers who applied integration system can be known as the Table 3.

Table 3. The level of welfare of farmers who integrate lowland rice with beef cattle

No	Category	Income (Rp/Month)	Number of Respondents	Percentage (%)
1	Welfare	3.358.457	10	40
2	Not Welfare	1.798.352	15	60
Jumlah			25	100

Source: Primary data processed (2020)

There were 10 prosperous farmers with an average income of Rp3,358,457/month, while other 15 farmers were not prosperous since the average income was Rp1,798,352/month. This difference is due to the amount of income received by different farmers which was affected by factors of land area, farming rice productivity, and the number of livestock owned by the farmers. Poor farmers had an area of land under 1 hectare with ownership of beef cattle under 2 cattles. This is in line with the study conducted by Priyanti A (2001) stating that farmers who applied integration system who had farming area under 1 hectare and livestock ownership of only 2 animals would only be able to provide an income increase of only 40%. If the integrated income of the farmers of this system is seen from the ability to bear the cost of living for family members, then the average farmer can support his family members, who were at the average of 4 people. The income per capita of an integration system farmer of Rp600,599/month was still above the poverty line in South Konawe District which was Rp200,663/month. Therefore, it can be concluded that the implementation of the integration system was able to provide increased income for farmers. Increased income certainly have an effect on the welfare of farmers because the income earned by farmers will be able to meet the living needs of the family members (Fyka, et al., 2019). As research conducted by Siswati and Nizar (2014), the increase occurred because there was a combination of income sources that did not only come from one type. Although the increase was highly dependent on the amount of ownership of resources owned by farmers both in the form of land and livestock.

CONCLUSIONS

The integration system of farming rice and beef cattle on a small household scale business is able to provide welfare for 40% of the farmers with an average income of Rp1,798,352/month. In addition, this integration system makes the average income of farmers per capita becomes above the poverty line in South Konawe District.

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