Comparative Income Combination of Farming and Cattle Bali in Palangga Subdistrict South Konawe Regency

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ABSTRACT: The research aims to determine the income of cattle business combined with horticultural farming and palawija in April-June 2020 in Palangga District, South Konawe Regency. The location determination method is purposive, where there are farmers with horticulture and palawija farming. Respondents in the study were 40 farmers. The data is analyzed qualitatively and quantitatively to compare cattle income, horticulture, and palawija. The results showed that the average income of livestock business amounted to Rp. 8,779,500/year and horticultural and palawija farming Rp. 18,889,950/year, Bali cattle business income combined horticultural farming of Rp. 20,931,200/year and Bali cattle business combined palawija farming of Rp. 6,738,250/year.

Keywords: Bali Cows; Horticulture; Palawija; Income

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INTRODUCTION

Indonesia has diverse resource potential and considerable potential for national income; the majority of the population relies on agriculture and is the basis of growth in the countryside (Apriani et al., 2020). Subsectors incorporated in the agricultural sector, namely food crops, horticulture, plantations, and farms (Sani et al., 2018; Arisman et al., 2020). The subsectors currently being developed are horticultural (Arida et al., 2019). This is because horticulture is part of agricultural development in food to strengthen food self-sufficiency further, increase people's income, and improve the nutritional state (Ritonga, 2018; Fyka et al., 2019).

As a commodity of livestock, Cattle is a source of animal protein that can meet the nutritional needs of the community (Dewi, 2019). Cattle maintenance has been around since long ago until now, but the maintenance of cattle is still traditionally run (Sani et al., 2018). Knowledge of farmers who are still very limited causes often have difficulties in running their business, lack of availability of feed in the dry season, large business capital with a long enough capital return time is a consideration in the maintenance of cows (Pagala et al., 2019; Pagala et al., 2020). Livestock development aims to realize an advanced, efficient, resilient, competitive, independent, and sustainable farm that at the same time plays a role in the empowerment of the populist economy in the countryside (Howara, 2019). The construction of farms is directed to produce superior products that can compete in the domestic market (Kurniati et al., 2019). Strengthening food security improves the image of farms to increase the income and welfare of farmers (Ningrum et al., 2019).

Realizing the development of farms needs to be done to transform the farming system that shifts from production orientation to orientation on increasing revenue (Yuliani, 2018).

The approach pattern shifts commodity approach to agribusiness approach (Sari et al., 2016). This approach is needed to turn farmers' resources into superior commodities that can compete in domestic and international markets by applying appropriate preproduction, production, and post-harvest technologies. Another alternative in improving cattle business is through the integration pattern of cattle-food crops or plantation crops. Khadijah et al. (2019) report that the development of farms can be through diversification of cattle both with rice fields, plantations, and ponds.

For the people of Southeast Sulawesi, the livestock sub-sector is an integral part of the development of the agricultural sector. The Bali cattle business is one type of ruminant livestock business that is widely maintained by the community to support agricultural development in rural areas spread over 17 districts/cities of Southeast Sulawesi. Generally, people raise Bali cattle integrated or combined with plantation crops, horticulture, and crops. This combination of businesses is expected to provide an excellent opportunity for the community to improve food security and the household economy. It is believed to reduce economic risks and crop failure if relying on one type of business/commodity.

The region of Southeast Sulawesi Province, which is the center of cattle development with the most population, is South Konawe Regency. One of the sub-districts with many cattle populations is Palangga Subdistrict, with a cattle population in 2020 reaching 6,187 head. Further, local farmers apply business diversification to breed Bali cattle and manage horticultural and crop farming to support the household economy. This background description encouraged the authors to conduct the study "Comparative income combination of farming and cattle Bali in Palangga Subdistrict South Konawe Regency Southeast Sulawesi Province."
MATERIALS AND METHODS
The research was conducted in April-June 2020 in Palangga Subdistrict, South Konawe Regency, Southeast Sulawesi Province. The research location was determined purposively, considering that Palangga Subdistrict has a large Bali cattle population which combined with horticultural farming or crops. South Konawe Regency is the center of Bali cattle development in Southeast Sulawesi Province. The population in the study was all cattle farmers who had horticultural crops and crops. Furthermore, 20 respondents have Bali cattle businesses and horticultural farming and 20 respondents who have Bali cattle businesses and palawija farming, so, overall, the number of respondents took as many as 40 people.

Variables observed in the study include (1) The state of cattle business, (2) Horticultural Farming, and (3) Agricultural farming. The data obtained is then analyzed quantitatively and qualitatively processed mathematically to know the amount of income of cattle, horticultural farming, and crops, then used analysis according to Soekartawi (2000) \( P_d = TR - TC, TR = Y \cdot Py, \) \( TC = FC + VC. \) Where: \( P_d = \) Farm revenue, \( TR = \) Total revenue, \( TC = \) Total cost, \( FC = \) fixed cost, \( VC = \) Variable cost, \( Y = \) Production obtained a farm, \( Py = \) Price y.

RESULT AND DISCUSSION

Income
Income in livestock businesses, horticultural farming, and crops is the difference in the revenue of livestock and farming businesses minus the total cost for one year. Fahrul and Rombe (2011) state that income is the difference in receipt and expenditure during the maintenance of cattle in 1 year. The average income of Balinese farms is in Tables 1 and 2.

| Source of Income                          | Acceptance (Rp/Year) | Cost (Rp/Year) | Income (Rp/Year) |
|-------------------------------------------|----------------------|----------------|------------------|
| Cattle Business                           | Rp. 7.745.000        | Rp. 1.848.500  | Rp. 5.896.500    |
| Watermelon and Vegetable Horticulture     | Rp. 21.262.500       | Rp. 6.227.800  | Rp. 15.034.700   |
| Business                                  |                      |                | Rp. 1.252.892    |
| Total                                     | Rp. 29.007.500       | Rp. 8.076.300  | Rp. 20.931.200   |

Table 1 data shows that the average income of farmers in Bali cattle and horticultural farming businesses reached Rp. 1.744,267/month. Farmers' income derived from the sale of Bali cattle amounted to Rp. 5,896,500/year. The average income derived from horticultural farming over the past year amounted to Rp. 20,931,200. According to Hidayati et al. (2020), low-income farmers, because of their business, are used as a side for sudden purposes. Similarly, Sahala (2016) farmers sell their livestock when there is a critical need. The average income of the Bali cattle business combined with palawija farming in the Palangga Subdistrict is in Table 2.

Table 2. The average income of Bali cattle and crops

| Source of Income                          | Acceptance (Rp/Year) | Cost (Rp/Year) | Income (Rp/Year) |
|-------------------------------------------|----------------------|----------------|------------------|
| Cattle Business                           | Rp. 4,235,000        | Rp. 1,352,000  | Rp. 2,883,000    |
| Palawija, Corn and Soybean Farming        | Rp. 6,512,500        | Rp. 2,657,250  | Rp. 3,855,250    |
| Total                                     | Rp. 10,747,500       | Rp. 4,009,250  | Rp. 6,738,250    |

Source: Data analysis processed, 2020.
Based on Table 2 data, the average income of farmers in Bali cattle and crops businesses reached Rp. 561,521/month. Farmers' income derived from cattle sales amounted to Rp. 240,250/month. The average income from farming crops each month reached Rp. 321,271. The findings show that income derived from cattle and crops is the lowest income after livestock businesses and horticultural farming. This is because the community grows crops that are widely used to meet basic needs as a consumption plant so that the production input is lower. Yamin and Syamsu (2020) reported that the follow-up of food crops is given to livestock to meet feed needs, while farmers themselves consume the type of cassava and sweet potato plants.

This study showed that only a small percentage of farmers use the results of agricultural products for their animal feed needs. As per Lukiwati et al. (2016), most farmers in the countryside have not used agricultural products as animal feed. Total revenue from cattle and farming products is in Table 3.

**Table 3. Total revenue of cattle and farming businesses**

| Source of Income     | Acceptance (Rp/Year) | Cost (Rp/Year) | Income (Rp/Year) |
|----------------------|-----------------------|----------------|------------------|
| Cattle Business      | Rp. 11,980,000        | Rp. 3,200,500  | Rp. 8,779,500    |
| Farming              | Rp. 27,775,000        | Rp. 8,885,050  | Rp. 18,889,950   |
| Total                | Rp. 39,755,000        | Rp. 12,085,550 | Rp. 27,669,450   |

Source: Data analysis processed, 2020.

The results of the analysis are in Table 3. During the last year, the average income of farmers from horticultural and agricultural farming was 18,889,950 IDR/year, and farmers' income from cattle business was 8,779,500 IDR/year. The average income of most types of businesses is farming at Rp. 1,574,163/month higher than the income of livestock businesses that only earn an income of Rp. 731,625/month. This shows that farm revenues provide better output than livestock businesses. Seeing the potential is supposed to develop livestock business can be done by utilizing the results of food crop participation as animal feed to improve farmers' welfare (Apriani et al., 2018; Pinardi et al., 2019).

**Revenue Comparison Analysis**

The average income of farmers who own Balinese cattle and horticultural businesses is Rp. 20,931,200/year, and cattle and crops businesses amount to Rp. 6,738,250/year. The results of the t-test analysis obtained a comparison of the average income of farmers who have livestock and horticultural businesses and livestock and crops businesses presented in Table 4.

**Table 4. Test the average income of the Bali cattle business, horticultural farming, and crops**

| Number of Samples (N) | Sapi dan Holtikultura | Sapi dan Palawija |
|-----------------------|-----------------------|-------------------|
| Average Revenue (Mean) Rp/Year | 20,931.200 | 6,738.250 |
| t-count (year) | 5,288 | 0,000 |

Source: Data analysis processed, 2020
Table 4 data shows that the average different test results for the income of farmers who keep Bali cattle and have horticultural businesses and farmers who keep Bali cattle and have a palawija farming obtained a significance value of 0.000 with a t-count value of 5.288. This means that the test results differ from the average income of farmers who keep Bali cattle and have horticultural farming with very significant differences (P<0,01) and more than farmers who raise Bali cattle by having a farm palawija. So, to maximize the potential of the combination of livestock, horticultural crops, and crops, one of the alternatives is by combining plants and livestock—integration of alternative livestock in tackling animal feed shortages (Azis et al., 2014). Because Balinese cattle are a type of cattle that can adapt to high-fiber feed (Setiawan et al., 2019), to be a supporting factor in improving the quality and quantity of livestock can take advantage of the follow-up results of agriculture, plantations, and types of food crops (Setiawan et al., 2019; Adhianto et al., 2019).

CONCLUSIONS

Based on the research, it is concluded that: (1) The average income of farmers obtained from Bali cattle and horticulture businesses amounted to Rp. 1,744,267/month and more than the income from Bali cattle and palawija businesses amounted to Rp. 561,521/month. (2) Comparative income of farmers who keep Bali cattle combined with horticulture farming and farmers who keep Bali cattle combined with palawija farming shows a very significant difference (P<0,01). (3) Bali cattle business with horticultural farming or crops can strengthen food security and the economy of farmers' households and minimize the risk of business failure.

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