

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

La Ode Arsad Sani*¹⁾, Harapin Hafid¹⁾, La Ode Muh. Munadi¹⁾, and Ahmad Doni¹⁾

¹⁾ Faculty of Animal Science, Halu Oleo University
Jl. H.E.A Mokodompit, Kendari, Southeast Sulawesi, Indonesia, 93132

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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

*Corresponding Author: arsadni@yahoo.com

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) $Pd = TR - TC$, $TR = Y \cdot Py$, $TC = FC + VC$. Where: Pd = 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.

Table 1. The average income of Bali cattle and horticultural farming

Source of Income	Acceptance (Rp/Year)	Cost (Rp/Year)	Income	
			Rp (Year)	Rp (Month)
Cattle Business	Rp. 7.745.000	Rp. 1.848.500	Rp. 5.896.500	Rp. 491.375
Watermelon and Vegetable Horticulture Business	Rp. 21.262.500	Rp. 6.227.800	Rp. 15.034.700	Rp. 1.252.892
Total	Rp. 29.007.500	Rp. 8.076.300	Rp. 20.931.200	Rp. 1.744.267

Source: Data analysis processed, 2020.

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 Sub-district 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)	Rp (Year)
Cattle Business	Rp. 4.235.000	Rp. 1.352.000	Rp. 2.883.000	Rp. 240.250
Palawija, Corn and Soybean Farming	Rp. 6.512.500	Rp. 2.657.250	Rp. 3.855.250	Rp. 321.271
Total	Rp. 10.747.500	Rp. 4009.250	Rp. 6.738.250	Rp. 561.521

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)	Rp (Year)
Cattle Business	Rp. 11.980.000	Rp. 3.200.500	Rp. 8.779.500	Rp. 731.625
Farming	Rp. 27.775.000	Rp. 8.885.050	Rp. 18.889.950	Rp. 1.574.163
Total	Rp. 39.755.000	Rp. 12.085.550	Rp. 27.669.450	Rp. 2.305.788

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

The small amount of income earned by both farmers in raising Bali cattle and having

horticultural farming and farmers who keep Bali cattle and crops can be proven by comparative test analysis using methods independent t-test. The aspects tested in this study were delivered by the cost of production, revenue, and farmers' income. The results of the t-test analysis will be able to know which combination of business types are gaining more significant profit.

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

	Sapi dan Holtikultura	Sapi dan Palawija
Number of Samples (N)	20	20
Average Revenue (Mean) Rp/Year	20.931.200	6.738.250
t-count (year)		5,288
Significance (sig)		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.

REFERENCES

Adhianto, K., Muhtarudin., Husni., & Zhahir. (2019). Provision of fermented cassava waste and micro organic minerals in Rations Against Goat Performa. *Animal Science:*

Journal of Livestock Science Research, 17(2), 12–16.

- Apriani, M., Nahraeni, W., & Yusdiarti, A. (2020). Analysis of agricultural income and institutional efficiency of organic and inorganic rice farming in Limbangan Village, Sukaraja District, Sukabumi Regency. *Agribisains Journal, 6(1)*, 14–28.
- Apriani, M., Rachmina, D., & Rifin, A. (2018). Pengaruh tingkat penerapan teknologi pengelolaan tanaman terpadu (PTT) terhadap efisiensi teknis usahatani padi. *Jurnal Agribisnis Indonesia, 6(2)*, 121–132. <https://doi.org/10.29244/jai.2018.6.2.121-132>
- Arida, A., Mujiburrahmad, M., & Anwar, S. (2019). Analisis komoditas unggulan tanaman pangan di Kabupaten Aceh Timur. *Agrifo : Jurnal Agribisnis Universitas Malikussaleh, 4(1)*, 80–86. <https://doi.org/10.29103/ag.v4i1.1544>
- Arisman, A., Saediman, S., & Abdullah, W. G. (2020). Corn intercropping system feasibility analysis (*Zea mays* L.) and peanuts (*Arachis hypogea* L.) in Lawa Subdistrict, West Muna Regency. *Journal of Agribusiness and Agricultural Socioeconomic Sciences, 5(2)*, 69–73.
- Azis, F. A., Liman, & Widodo, Y. (2013). Potensi limbah padi sebagai pakan sapi bali di Desa Sukoharjo II Kecamatan Sukoharjo Kabupaten Pringsewu. *Jurnal Ilmiah Peternakan Terpadu, 2(1)*, 26–32.
- Dewi, R. K. (2019). Analysis of potential ruminant livestock development area in Lamongan Regency. *Livestock Journal, 9(2)*, 5–11.
- Fahrul, A. H., & Rombe, M. B. (2011). Analysis of beef cattle farm revenue in Tenete Rilau Subdistrict, Barru Regency. *Journal of Agribusiness, 10(3)*, 98–109.
- Fyka, S. A., Limi, M. A., Zani, M., & Salamah, S. (2019). Analisis potensi dan kelayakan usahatani sistem integrasi padi ternak (Studi Kasus di

- Desa Silea Jaya Kecamatan Buke Kabupaten Konawe Selatan). *Jurnal Ilmu Dan Teknologi Peternakan Tropis*, 6(3), 375–381. <https://doi.org/10.33772/jitro.v6i3.7520>
- Hidayati, F., Yonariza, Y., Nofialdi, N., & Yuzaria, D. (2020). Analisis keuntungan dan kendala penerapan konsep sistem pertanian terpadu (SPT) di Indonesia. *Jurnal Agribisnis Dan Ilmu Sosial Ekonomi Pertanian*, 5(3), 74–83. <https://doi.org/10.37149/jia.v5i3.11688>
- Howara, D. (2019). Optimization of integrated rice and cattle farming development in Majalengka Regency. *Journal Agroland*, 18(1), 43–53.
- Khadijah, N., Hadi, S., & Maharani, E. (2019). Analysis of beef cattle agribusiness in siak regency of Riau Province. *Journal of Agribusiness*, 21(1), 23–35.
- Kurniati, N., Efrita, E., & Damaiyanti, D. (2019). Farm revenue of rice and cattle based integration system in Rimbo Kedui Village, Seluma Regency, Bengkulu Province. *Journal of Agribusiness Fisheries*, 12(1), 64–69.
- Lukiwati, D. R., & Kristanto, B. A. (2016). Peningkatan produksi jagung manis dan jerami dalam sistem integrasi tanaman pangan dan peternakan sapi brangus. *Jurnal Ilmu Ternak*, 16(2), 89–94.
- Ningrum, N. Z., Limi, M. A., & Fyka, S. (2019). Multiplier effect analysis of mina padi system development for local people in Epeesi Village, Basala District, South Konawe Regency. *Jurnal Agribisnis Dan Ilmu Sosial Ekonomi Pertanian*, 4(6), 166–172.
- Pagala, M. A., Munadi, L. M., & Zulkarnain., D. (2019). Diversity and green types carrying capacity bali beef in oil palm plantation in Kolaka District. *Indonesian Journal of Animal Agricultural Science*, 1(1), 48–55.
- Pagala, M. A., Zulkarnain, D., & Munadi, D. Z. (2020). Kapasitas daya tampung hijauan pakan ternak dan hasil ikutan perkebunan kelapa sawit di Kecamatan Tanggetada Kabupaten Kolaka. *Jurnal Sosio Agribisnis*, 5(2), 70–76.
- Pinardi, D., Gunarto, A., & Santoso, S. (2019). Perencanaan lanskap kawasan penerapan inovasi teknologi peternakan prumpung berbasis ramah lingkungan. *jurnal ilmiah peternakan terpadu*, 7(2), 251–262. <https://doi.org/10.23960/jipt.v7i2.p251-262>
- Ritonga, U. S. (2018). Commodity dynamics based on the broad advantage of food crop land Sumedang Regency West Java Province. *Journal of Agribusiness Malikussaleh University*, 3(1), 57–68.
- Sahala, J. (2016). Analisis kelayakan finansial usaha penggemukan sapi simmental peranakan ongole dan faktor-faktor yang berpengaruh terhadap jumlah kepemilikan pada peternakan rakyat di Kabupaten Karanganyar. *Buletin Peternakan*, 40(1), 74–82. <https://doi.org/10.21059/buletinpeternak.v40i1.9823>
- Sani, L. O., Ba'a, L. O., Abadi, M., & Ali, T. (2018). Analisis finansial kombinasi usaha ternak sapi bali, perkebunan dan hortikultura di Kecamatan Tinanggea Kabupaten Konawe Selatan. *Inovasi Teknologi Peternakan Dalam Mendukung Terwujudnya Ketahanan Pangan Nasional*, 393–400.
- Sari, A., Liman, & Muhtarudin. (2016). Potential capacity to support waste crops palawija as ruminant animal feed in Pringsewu District. *Scientific Journal of Integrated Animal Husbandry*, 4(2), 100–107.
- Setiawan, B. D., Arfa'i, A., & Nur, Y. S. (2019). Evaluasi sistem manajemen usaha pembibitan sapi bali terintegrasi dengan perkebunan kelapa sawit di Kabupaten Pasaman Barat, Provinsi Sumatera Barat. *Jurnal Ilmiah Peternakan Terpadu*, 7(3), 276–286. <https://doi.org/10.23960/jipt.v7i3.p276-286>
- Soekartawi. (2000). *Teori Produksi*. PT Raja Grafindo Persada.

- Yamin, A. A., & Syamsu, J. A. (2020). Food waste as cattle feed cattle In Sidenreng Rappang District. *Sriwijaya Livestock Journal*, 9(1), 26–34.
- Yuliani, D. (2018). Rice cattle integration system to realize food sovereignty. *Journal of Agrotechnology*, 4(2), 15–26.