The performance of Bali Cattle in transmigration area, south Kalimantan: a financial analysis

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Abstract. This research was conducted in the sub-district of Takisung, district of Tanah Laut, South Kalimantan Province in 2012. This paper was aimed to know the farming performance of the Bali Cattle rearing system in the transmigration area reared by the transmigrant groups of Harapan Makmur, Sumber Rejeki, Tunas Muda and Darmarwulan, that were selected using purposive sampling as the primary data. The agroecosystem that supported the area consisted of palm oil, rubber and agricultural land. Secondary data was obtained from province agriculture officer and district livestock officer. The results of the study showed that the benefits of calf crop beef cattle rearing system (traditional breeding system) in the group of Harapan Makmur was around IDR 5,295,200/year with B/C ratio of 1.28, whereas the value of the benefits of the group of Tunas Muda was around IDR 4,105,800/year with B/C ratio of 1.22. The value of the benefit of feedlot cattle rearing system in the groups of Sumber Rejeki was around IDR 2,110,000/3 months with B/C ratio of 1.07 and the value of the benefits of the group of Damarwulan was around IDR 5,760,000/3 months with B/C ratio of 1.09. Land resource and source of manpower strongly supported the development of cattle farming with the ownership of 2-4 head/family, both the cows and the bull are very economical, effective and efficient in those business so that would benefit to the farmers group.

1. Introduction

The population of cattle in Indonesia recorded was around 15.494.300 [2], scattered throughout the provinces such as South Kalimantan Province, in this province the population of cattle was 150.900 (0.99%). The beef cattle business is part of the most important components in the transmigrants farming in South Kalimantan, because the beef cattle is kept by most (80%) farmers, kept in small-scale and semi-intensive farming system. This kind of business can help the economy for the transmigrant farmers group by using the natural resources of forages as animal feed which are available abundantly in the surroundings.

Biologically, beef cattle is well adaptive in the environmental agroecosystem conditions in South Kalimantan [1]. The development of cattle in the Island of Java, generally directed at the area of transmigration for additional income, considering the amount of natural resources which are very potential, besides that its development will hopefully be faster [11]. The challenges often faced in the business development of beef cattle, is that there is no assurance of the availability of good quality feed in the form of forage/roughage and waste product of food crops [5].
The availability of agricultural land, of empty land plantation, dryland, rice-fields, are potential land to provide greenish (livestock green feed), weather good grass or various agricultural waste, which can be used for development of beef cattle farming [7]. Business on the development of beef cattle especially Bali Cattle seem to be very suitable in the condition of agricultural land because Bali Cattle is known easily to adapt to various conditions of agro-ecosystem in the rural environment and is a complementary business to another business of agriculture [10,12].

The farmers group of beef cattle farming in the transmigration area in South Kalimantan was integrated with palm oil plantation and other plantation in dry field as the source of livestock woof, such as elephant grass, brachiaria grass, gliricidea, leucaena, calandra, fields grass, king grass, racquets grass, jumpang grass, and the remaining of agricultural waste such as the waste of corn crops, soy beans, sweet potato and cassava. Based on those potentials mentioned above, a research needs to be conducted to assess the revenue of the beef cattle farming, in addition to the major business of food crops or others. The purpose of this paper is to see the performance of the farmers group of beef cattle farming especially the financial analysis in the transmigration area in South Kalimantan

2. Methodology
The research was carried out in the sub-district of Takisung of Tanah Laut Regency, South Kalimantan Province, in 2012. The location of the research was in the area of palm oil plantation, coconut, rubber and food crops farming, that is good enough for the development of Bali and PO cattle. The research conducted, using survey method. Interviewed against transmigrant farmers groups of beef cattle, that are Harapan Makmur, Sumber Rejeki, Tunas Muda and Darmarwulan, that were selected by purposive sampling. The determination of the location of the research was recommended by the Education Department of Agriculture and Animal Husbandry, South Kalimantan, farmers must have Bali or PO cattle. The information obtained among other things are maintenance/management pattern of cattle, the number of ownership of cattle, mating system, calving interval, livestock prices, labor wages and selling cattle.

The productivity of labor (IDR/day) shows the greatness of the reward obtained by farmers who poured out for 8 hours (oneday work). The volume of labor allocation can be achieved from the calculation of the total acceptance/revenue of cash and non-cash in one year divided by the total labor used in one year period. In fact, the farmers never calculate the labor costs [8]. The secondary data were obtained from the local of Animal Husbandry Department and Statistic Agents. The economic value (IDR/farmer/year) is calculated based on the difference between the acceptance and the expenditure (Cost and benefit analysis) [9], [6]. The primary data and secondary data collected were processed and analyzed economic financial and then displayed in the form of tables and descriptively.

3. Results and Discussion
3.1. Group profile of beef cattle farmers selected
The population of South Kalimantan in 2012 was around 3.62 million with the population density of around 97 people/km2, the spread of the density in the district is still in the medium density of around 50-300 people/km2, in Banjarmasin city and Banjarbaru are categorize and classified as a densely populated area, that were more than 500 people/km2, meanwhile the people who work in the field of agriculture almost 60 percent and the remainder are working as traders, employees and others. Transmigration is one form of government (central and local government) concern, to reduce the number of the inhabitants of the crowded area, so directed to the area that is still rarely populated.

The government policy in order to offset the population density, balance to a form as system which is very good and seem to be able to improve the welfare of the community, it was expected that the labor and natural resources can be used more optimally. Hopefully the spread of the population will be more balanced and equal, so that the life quality of the people will be increased. This can be seen from the purpose of the
program on the development of animal husbandry in the area of transmigration, among others are to help farmers in the transmigration area, the provision of the means of production of agriculture and increase the income of farmers, create jobs, and the provision of the beef cattle stock. Palm oil plantations is the largest section in the region of transmigration area of South Kalimantan, following the vineyard mixture and rice fields that are also integrated with the Bali and PO cattle.

South Kalimantan consists of 9 districts with a population of ruminants of 229,418,51 AU in 2012. The spread of the population of the beef cattle is 173,304,16 AU (75,5%), then followed by buffalo 40,958,97 AU (17.85%) and the rest are the sheep, goats and horses. The number of three largest population of beef cattle are in the Tanah Laut district (61,872,73 AU), then in Tanah Bumbu (23,966,07 AU) and Tapin (12,271,57 AU). Group profile of beef cattle farmers selected is shown in table 1.

**Table.1. The Profile of transmigration farmers of beef cattle in South Kalimantan**

| No | Item                                      | Harapan Makmur       | Sumber Rejeki     | Tunas Muda       | Damarwulan       |
|----|-------------------------------------------|----------------------|-------------------|------------------|------------------|
| 1  | Location (village, sub district)          | Telaga, Karang Taruna| Banuang Tengah, Takisung | Banuang Tengah, Takisung | Rantau Badan, Rantau Badan |
| 2  | Number of farmers                         | 31                   | 20                | 20               | 10               |
| 3  | Total Number of cattle (head)             | 75                   | 40                | 60               | 39               |
| 4  | Cattle ownership (head/family)            | 2-4                  | 2                 | 2-5              | 2-4              |
| 5  | Breed of cattle                           | Bali Semi-intensive | Simental, PO Intensive | Bali Semi-intensive | Simental, PO Intensive |
| 6  | Management pattern                        | Grass/agriculture waste | Grass/agriculture waste | Grass/agriculture waste | Grass/agriculture waste & cassava meal |
| 7  | Feed                                      | Cow-calfsystem      | Fattening system | Cow-calfsystem | Fattening system |
| 8  | Type of business                          |                      |                   |                  |                  |

Table 1, shows that the family labor which is poured out in the beef cattle rearing in transmigration farmers group does not increase the number of cattle kept, that is still around 2-4 head/farmer. The labor that is used by the transmigration group of farmers of beef cattle rearing does not interfere with the business activities of agriculture, trade and other business, farmers feel happy in an effort to keep the beef cattle with a reason that it is easy to find livestock, easy to get forage, easy way sales of livestock, easy to manage and easy to restore the manure as fertilizer in their own farm that will benefit to the fertility of agricultural crops of the farmers them selves.

Each location of the research has a source of green feed enough for the needs of the cattle. There are several superior grass that are already familiar and known by the group of beef cattle farmers in the transmigration area in South Kalimantan such as elephant grass, brachiaria grass, gliricida, leucaena, caliandra, fields grass, king grass, racquets grass, jampang grass and the remaining are agricultural waste.
[3] report that forage/roughage is the major feed for both large and small ruminants for the provision of livestock feed throughout the year and supposed to be sufficient for sustainable livestock feed. In the last few years. The scale of the beef cattle maintained by the farmers groups in the transmigration area is around 2-4 head/farmer. Even though the business is very real and obtain attention from the local government, some farmers keep their cattle in the stalls and some keep and leave them in the pastures, in palm oil plantations or in the dry land surrounding.

3.2. Financial analysis of Cow calf and Feedlot rearing system in the transmigration area in South Kalimantan

Business profile of cow-calf and feedlot farming in four groups of farmers is shown in table 2. Each group of farmers attempting to do either ‘breeding’ and fattening/feedlotting farm traditionally, the farmers kept their cattle in the traditional system. The farmers that do the ‘traditional breeding’ or cow-calf rearing system earn their income from selling the calves, young bull, adult bull (steers) and cows. While the source of revenue of the feedlotter comes from the sale of feedlots bull (steers) over a certain time.

Table 2. Financial Analysis of cow-calf (‘traditional breeding’) and Feedlot rearing system

| Item                        | Harapan Makmur | Sumber Rejeki | Tunas Muda | Damar Wulan |
|-----------------------------|----------------|--------------|------------|-------------|
| Average number of cattle (head) | 3              | 2            | 3          | 3           |
| Period of rearing (month)   | 12             | 3            | 12         | 3           |

A. Investment/ Fix cost & depression

| Item                | Harapan Makmur | Sumber Rejeki | Tunas Muda | Damar Wulan |
|---------------------|----------------|--------------|------------|-------------|
| Cows                | 8,250,000      | -            | 8,500,000  | -           |
| Feeder bull         | -              | 29,500,000   | -          | 59,000,000  |
| Heifer              | 5,175,000      | -            | 5,000,000  | -           |
| Calf                | 1,750,000      | -            | 1,500,000  | -           |
| Depression of animal shade | 501,500  | 500,000     | 500,000    | 600,000     |
| Depression of an.shade equipment | 215,500  | 230,000   | 225,000    | 250,000     |

B. Variabel cost

| Item                | Harapan Makmur | Sumber Rejeki | Tunas Muda | Damar Wulan |
|---------------------|----------------|--------------|------------|-------------|
| Labour              | 3,232,800      | 740,000      | 3,139,200  | 760,000     |
| Medicine            | 30,000         | 30,000       | 30,000     | 50,000      |
| Cassava meal        | -              | 200,000      | -          | 500,000     |
| Forage/roughage     | -              | 650,000      | -          | 1,000,000   |

Sum of A+B (IDR) 19,154,800 31,850,000 18,894,200 62,160,000

C. Revenue (cattle sale)

| Item                | Harapan Makmur | Sumber Rejeki | Tunas Muda | Damar Wulan |
|---------------------|----------------|--------------|------------|-------------|
| Cow (IDR)           | 10,150,000     | -            | 11,050,000 | -           |
| Adult female/cow (IDR) | 7,200,000     | -            | 6,850,000  | -           |
| Young bull/steer (IDR) | 7,100,000     | -            | 5,100,000  | -           |
| Bull (IDR)          | -              | 33,960,000   | -          | 67,920,000  |

Total revenue (IDR) 24,450,000 33,960,000 23,000,000 67,920,000

D. Benefit (IDR) / period | 5,295,200 | 2,110,000 | 4,105,800 | 5,760,000 |

E. Benefit (IDR) / month | 441,267 | 703,333 | 342,150 | 1,920,000 |

F. Benefit (IDR) / month/head | 147,089 | 351,667 | 114,050 | 640,000 |

G. B/C Ratio 1.28 1.07 1.22 1.09
Table 2. shows that the cow-calf (‘traditional breeding’) and feedlot/fattening business in four groups of farmers is still profitable because the value of the B/C ratio is >1. The largest value of the benefits/month/head occurs in the business of feedlots in the group of Damarwulan, as much as IDR 640,000/month/head. The value of the B/C ratio is used to determine the feasibility of beef cattle business on each of the groups of farmers.

There are several factors of production that can be pressed the business financing such as the cost of purchasing the stock of beef cattle, the labor and the cost of feedstuff so that the acceptance can be optimized [4]. Forage and other roughage is still a problem for the farmers in doing business in beef cattle, when facing the dry season, where the availability greenish feedstuff decreases. But usually the farmers group will deal with it by using the any forage (feedstuff) that grows at any place, including post harvesting paddy field, palm oil plantations and waste of food crops. Cash receipts only concentrated on the sale of beef cattle yield per year and not allocated sales of natural fertilizer, because all manure is used as fertilizer for their own farms.

4. Conclusion

Four research locations in the district of Tanah Laut have agroecosystem that is good enough for the development of Bali and PO cattle. Both cow-calf (traditional breeding) rearing system and feedlot of beef cattle rearing system that still reared traditionally provide benefits.

Benefits of business gain in cow-calf rearing system (traditional breeding) to the farmers group of Harapan Makmur is around IDR 2,952,000/year with B/C ratio of 1.28, then the value of the benefits to the farmers group of Tunas Muda is around IDR 4,105,800/year with B/C ratio of around 1.22. The value of business advantage in the feedlot cattle of the groups of Sumber Rejeki is around IDR 2,110,000/3 months with B/C ratio of around 1.07 and the value of the benefits to the farmers group of Damarwulan is around IDR 5,760,000/3 month with B/C ratio of around 1.09.

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