INTERNATIONAL JOURNAL OF CURRENT MULTIDISCIPLINARY STUDIES
Available Online at http://www.journalijcms.com
VOL. 5, ISSUE,02(A), PP. 964-967,FEBRUARY,2019
IJCMS

RESEARCH ARTICLE

INCOME ANALISIS BETWEEN FATTENING AND BREEDING OF BALI CATTLE AT COMMUNAL HOUSING SYSTEM IN NARMADA DISTRICT WEST LOMBOK REGENCY WEST NUSA TENGGARA PROVINCE INDONESIA

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ARTICLE INFO

Received 4th November, 2018
Received in revised form 25th December, 2018
Accepted 18th January, 2019
Published online 28th February, 2019

Keywords:

fattening and breeding, cost and revenue, income comparison

ABSTRACT

This research aimed at identifying the income difference between fattening and breeding of Bali cattle at communal animal housing in Narmada district West Lombok Regency West Nusa Tenggara. The research was conducted with survey method for four weeks. Sampling area was determined by purposive sampling to 4 groups of farmer in 4 sub districts. Respondents were chosen by simple random sampling. There were 52 respondents composed of 26 farmers from fattening sector and 26 farmers from breeding sector. The collected data were analyzed using input output analysis continued with T-test using SPSS software ver.16. Results showed that average net farm income for fattening sector was IDR 5.803.612 per farmer annually with average number of raised cattle of 2.46 while it was IDR 1.026.106 per farmer annually in breeding sector with average of raised cattle of 2.35. Average of net farm income incomes per number of cattle raised was IDR 2.582.204 annually for fattening sector, while it was IDR 692.748 annually for breeding sector. Average benefit cost ratio for fattening was 1.2 while it was 1.3 for breeding. T-test showed that the t-value was -4.166 and Sig. of 0.014 which confirmed that there was significant difference between fattening and breeding sector in term of income.

INTRODUCTION

Development policy related to animal husbandry subsector is to increase the quality of policy and program towards empowerment of local resources to develop high competitiveness and sustainable animal husbandry. The vision of animal husbandry is to create healthy, productive and creative society through development of strong animal husbandry based on increasing local resources (Tandi, 2010). Beef cattle are the predominant contributor of meat from ruminant to the national production of beef. Beef cattle have been raised by the people for long time with the purposive of investment and can be used on the farm to work and raised with traditional management. Pattern of business in beef cattle sector is primarily as the work of society to produce calf in the breeding sector and enhance the weight of cattle in the fattening sector. Population of local beef cattle as meat producer has not been optimally done using advanced management. Therefore this sector has high potency to be developed as profit earning activity both in fattening or breeding (Suryana, 2009).

According to Trigestianto *et al* (2013) beef cattle raising has long been conducted by farmers and it has high economic potency because cattle are adaptable to environment, easy to be raised and able to digest simple feed. Breeding and fattening of beef cattle have long been conducted in Narmada by the farmers which predominantly joined into a group and raised their cattle's in a communal housing.

Bali cattle is adaptable to new environment therefore it is well known as opener cattle. This cattle is the most popular choice among farmers in Indonesia due to several factors: 1) efficient in the usage of feed, 2) high carcass percentage, 3) low fat beef, 4) high fertility (good calving interval), 5) a type of good worker, 6) adaptable to environment. Characteristics of Bali cattle are brick red haired, the male will getting black or darker color as grown, there were white on the bottom of the legs until the back of tight, the edge of upper lip and legs, it has unique formed hump and there is clear black line on the upper of the back.

Average daily gain of Bali cattle is 0.35 – 0.66 Kg. Good managements can improve the ADG into more than 0.7 Kg. Carcass percentage of Bali cattle is about 56 – 57%. Ratio meat

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and bone is 4,44 : 1. The weight of male mature Bali cattle can achieve 375 – 400 Kg, while the mature female cattle can achieve weight of 275 – 300 kg (Supriyadi, 2012).

RESEARCH METHODS

This study was conducted in Narmada district, West Lombok Regency, Nusa Tenggara Province, Indonesia using survey method. This survey was conducted by collecting data in the location through direct interview with farmers using the prepared draft of questionnaire.

The type of this study is quantitative descriptive. The process of this study is consisted of several parts including sampling, data collecting, data analysis based on the observed variables, and finally making conclusion.

RESULTS AND DISCUSSION

Economical development in agricultural sector aimed at increasing production in animal sector as well as revenue of the farmers. Number of animal in Narmada District was 907 of goats, 334 of sheep, 3 buffaloes, 130 of broiler chickens, no layer chicken, 131.546 local chicken, 14443 of ducks, 225 of swine, 11.781 of entok/peking duck, 6828 of pigeons, and 7,707 of others (National Statistical Center Bureau)

Fixed cost in this business is the cost which is not affected by the fluctuation of the production level. In this research the fixed cost including housing cost and equipment cost. Results showed that the average fixed cost, pay by the farmers of fatting and breeding can be seen in Table 1.

Table 1 Average fixed cost in fattening and breeding sector in Narmada District annually.

No	Fixed Cost	Fattening	Breeding
1	Housing renovation (IDR)	24.424	38.239
2	Equipment (IDR)	112.888	159.151
3	Housing rent (IDR)	236.538	247.115
Total amount (IDR)		373.850	444.505

Source: Processed from primary data (2014)

Housing system used by the farmers in Narmada District was collective housing system. The housing of each group at the study site is very diverse.

Most of the group housing in Narmada are open housing that are without using walls but using makeshift bamboo. In addition, the roof used in sometimes this group can be in the form of zinc, tile and asbestos, while the cage floor used varies in each group. In the group of Nusa Indah, Pemangket Bangkit and Mule Jati, cage flooring is made of cement. This was because the groups received outside assistance while the Merte Sari group on the cage floor was still in the form of land because not got assistance at all. According to Dilaga (2014) roofs in group housing can be made from various materials, such as rice straw, dried coconut leaves, reeds, bamboo, zinc, or tile. As a support pole can be bamboo, tree trunks, etc. Floors can be of ordinary soil or cement with a slope of about 35%. For the walls of the cage can be made of walls, bamboo walls, or boards.

To see the depreciation costs of each tool used in the livestock business both in the fattening business and the breeding business can be seen in Table 2.

Table 2 Average of depreciation tool used in business per year

No	Tools	Fattening		Breeding		Average	
		Technical age (year)	depreciation (IDR)	Technical age (year)	depreciation (IDR)	Technical age (Tahun)	Depreciation (IDR)
1	Machete	2,00	30000,00	1,33	46666,67	2,66	53333,33
2	Place of grass	2,00	17840,91	1,50	25000,00	2,75	30340,91
3	Sacks	1,04	56250,00	1,00	50769,00	1,54	81634,5
4	Sickle	1,73	31730,77	1,32	62800,00	2,39	63130,77
5	Shovel	-	-	2,00	25277,78	1,00	12638,89
6	Hoe	4,27	21685,90	2,84	42916,67	5,69	43144,23

Resources : Processed by primary data (2014)

The cost of repairing housing at fattening and breeding businesses in group pens is basically issued annually at IDR. 25,000 - IDR. 30,000. This is done because most breeders must improve the condition of their housing at least once a year with the aim of maintaining the quality of the housing and the comfort of their livestock.

Variable Costs

Variable costs in this study are costs incurred by both cattle breeders with fattening and breeding efforts with Bali Cattle breeding businesses. The size of the average variable costs in fattening business farmers and Bali Cattle breeding businesses can be seen in Table 3.

Table 3 Average variable costs in fattening business farmers and Bali Cattle breeding businesses

No	Variable cost	Fattening	Breeding
1	Breeding (IDR)	17.798.077	9.013.487
2	Additional feed (IDR)	536.538	426.923
3	Medicines (IDR)	26.385	14.423
4	Artificial insemination (IDR)	-	25.000
5	Mating cost (IDR)	-	14.102
6	Marketing (IDR)	-	-
	Total	18.361.000	9.481.243

Resources : Processed by primary data (2014)

One of the problems in maintenance cattle in Narmada Sub district is that farmers have difficulty feeding in certain months. The month in which feed are difficult to obtain, namely in August to October. Thus for the maintenance of cattle, especially the fattening business, it should be done in December to May. The average cost of medicines in the fattening business as well as the respective breeding business is as much as IDR. 26,385 and IDR. 14,423. The administration of medicines is carried out by calling on officers from the local livestock department to remember that the farmer does not yet have skills in this case. There are differences in the cost of drug administration in fattening and breeding businesses because in an effort to fatten, intensive drugs such as worm medicine and vitamins that can support the growth of male cattle body weight. Whereas in the business of drug breeding, medicines are only given to livestock when the animals experience illness so that the usual drug needs are said incidentally.

In this study, it can be seen that in breeding businesses, livestock marriage is not only done through natural mating but breeders also carry out injection mating or artificial insemination. According to Matondang and Rusdiana (2013) Artificial Insemination (IB) is one of the efforts to increase the productivity of local beef cattle through the genetic utilization

of superior breed cows crossed with local breeding cattle. Natural mating is usually done by using fellow Balinese cattle while in the process of mating injections of sperm used come from other cow sperm, for example Simmental Cow sperm. In this case both methods have their own strengths and weaknesses. The advantage that can be obtained if the breeder uses natural mating is that the livestock that are mated quickly and in the process of birth are not at high risk of distockia. While the weakness is that cows produced from natural mating are not as expensive as cows produced from other cow sperm.

Total Cost

In this study the total production costs incurred by fattening and breeding business. For more details, the total production costs incurred by fattening and breeding businesses can be seen in Table 4.

Table 4 Average of costs incurred by fattening and breeding businesses annually.

No	Cost	Fattening	Breeding
1	Fixed cost (IDR)	373.850	444.505
2	Variable cost (IDR)	18.361.000	9.481.243
	Total	18.734.849	9.925.748

Resource: Processed by primary data (2014)

In this study to see the results obtained from breeding business is known by looking at the dynamics of livestock population over the past three years. After getting information about livestock dynamics for three years, we can share it every year to find out the average gross income for one year. To find out how much gross income between fattening farmers and breeding businesses can be seen in Table 5.

Table 5. Average of gross farm income between fattening and breeding businesses annually.

No	Cost	Fattening	Breeding
1	The value of cattle (IDR)	24.538.462	4.730.769
2	The value of compost (IDR)	-	-
3	Value of livestock (IDR)	-	5.239.743
4	Initial livestock (IDR)	-	3.004.487
5	Livestock purchased (IDR)	-	1.210.667
6	Livestock died (IDR)	-	884.615
	Total amount	24.538.462	4.917.308

Resources: Processed by primary data (2014)

The difference in gross income received by fattening and breeding business farmers is caused by revenues derived from the sale of livestock. Fattening business farmers receive the proceeds of sale of livestock for one year in the amount of IDR. 24,538,462 while breeders of the breeding business receive the proceeds of livestock sales of IDR. 4,730,769. In addition, the gross income received by the breeder business comes from the value of livestock currently being maintained, namely IDR. 5,239,743. In addition, the current income through the value of sales and the value of livestock must be reduced by the value of the initial livestock, the value of livestock purchased, the value of livestock that died, and the value of livestock lost (if any).

Table 6 Average of net farm income in between fattening and breeding business annually.

No	Net Farm Income	Fattening	Breeding
1	Gross Farm (IDR)	24.538.462	4.917.308
2	Cost (IDR)	18.734.849	3.891.202
3	Net Farm income (IDR)	5.803.612	1.026.106

Resources : Processed by primary data (2014)

This difference is influenced by several factors, among others, the number of livestock kept and variable costs for each business. In addition, the difference in income is influenced by the length of maintenance time both in fattening and in the breeding business. In the fattening effort it takes one year to get the desired results while in the breeding business it takes three years to see the results obtained. Livestock business in the location of this research is still classified as a side but they have the desire to increase the number of livestock. This is because farmers want additional income to be earned through raising livestock.

Business efficiency is a way to find out whether a business suffers a loss, makes a profit or is at break even. The results showed that the Bali Cattle business in the fattening and breeding business in Narmada District provided benefits for farmers. To see business feasibility in fattening and cattle breeding business, B-C ratio analysis was used. To see the B-C ratio in each of these businesses is presented in Table 7.

Table 7 Average of BC Ratio fattening and breeding business of Bali cattle in Narmada annually.

No	Variable cost	Fattening	Breeding
1	Gross income (IDR)	24.538.462	4.917.308
2	Total cost (IDR)	18.734.849	3.891.202
3	BC Ratio	1,310	1,264

Resources: Processed by primary data (2014)

Table 7, shows that there is a difference in the BC ratio obtained by fattening farmers and breeding business will experience a profit if the value of business efficiency is> 1 and a business will suffer losses if the value of business efficiency is less than <1 while a business does not experience loss or profit if the value of business efficiency is equal to one Ratnawati and Budianto (2011). The B-C ratio of the cattle fattening business is 1,310, meaning that for each farmer expenditure of IDR 1,000, the farmer will receive an income of IDR 1,310. So that it can be said that the fattening business farmer experienced a profit of IDR 310 rupiah. Whereas the average BC Ratio of cattle breeding business is 1,264, which means that for each farmer expenditure of IDR. 1,000, the farmer will receive an income of IDR. 1,264. So that it can be said that the breeder breeders experienced a profit of IDR. 264 rupiah.

CONCLUSION AND RECOMMENDATION

The results of the research show on the comparison of income between fattening and breeding business, it can be concluded as follows:

1. The business form of fattening cattle and breeding cattle is still classified as a side business with ownership scale of 2-3 cattle.

2. The net income of the average farmer in the cattle fattening farm at the research location is IDR. 5,803,612 / year with an average maintenance of 2.46 while the farmer in the cattle breeding business is IDR. 1,026,105 / year with an average maintenance of 2 , 35 tails, so that the average net income obtained in the fattening business was IDR 2,582,204 / year / head while in the breeding business IDR 692,748 / year / head.
3. Fattening cattle business is more efficient than breeding cattle with B-C ratios, respectively 1.3 and 1.2.
4. The business income of fattening beef is greater than the business of breeding cows and based on the t test is obtained a t value of - 4,166 with Sig. 0.014.

Recommendation

1. To increase farmer's income, it is necessary to develop a business scale from an average of 2 to 6 animals so that the income is around IDR. 6,000,000 / year.
2. To improve the welfare of farmers, there needs to be a government participation in providing capital assistance and training in order to increase the income of farmers.

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