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Financial Trade Analysis of Local Rabbit Livestock Business That Use Coffee Skin Waste Product as Animal Feed

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ABSTRACT

The experiment was conducted to know profit level of local Rabbit livestock (Lepus aigricollis) fed various coffee skins. The experimental design used was completely Randomized Design (RBD) with 4 treatments and 5 blocks. Those treatments were feed without coffee skin (R0), feed with 10% unfermented coffee skin (R1),feed with 20% unfermented coffee skin (R2), feed with 10% fermented coffee skin (R3), and feed with 20% fermented coffee skin (R4). Results of the experiment showed that the use of coffee skin as component of the feed caused decreased of feed prices between 4.96% up to 17.11%. Based on this sale price at the end of its fattening that the animal with treatment R3 rich the highest profit with the R/C ratio was 1.22 then followed by R2 (1.11), R4 (1,07), R0 (1.06) and R1 (1.03). It can be concluded that the use of 10% fermented coffee skin in the feed of local Rabbit rich the highest profit level.

Keywords: Local Rabbit, Coffee Skin, R/C Ratio and Farmer's Profit.

INTRODUCTION

Generally, animal husbandry including livestock is the leading of economics national that can increase national food endurance. The endurance of livestock sector is showed by the great potentiality of local resources i.e. livestock, technology and agro industry waste products as animal feed. According to Soehaji (1990) that global competition could be wined with increases of capability to realize development, efficiency and endurance of livestock. The endurance livestock is a condition where capital, nature, workers and technology can be used optimally, so the product that produces could fulfill market demand.

Obstacles in Bali in order to develop ruminant animal particularly cattle is limitation of expansion area which is getting less and less from time to time and its reproduction is slow, so it needs diversification on meat through fowls and pigs. To develop of those animals need expensive

feed because it competitive with human being. So, this effort is not efficient for being developed (Suradi 2005). The Rabbit is one of animal alternative that has great potential for diversification in order to provide animal protein sources in form of meat. According to BPS (2012) that the populations of the Rabbit in Bali in the year of 2012 were 5,907 heads where the most populated area were Tabanan and Karangasem Regencies i.e. 2,942 and 1,522 heads respectively. The animal is chosen to be stated because it feed is not competitive with human needs where the animal fed with high quality forages could increases feed efficiency (Farrel and Raharjo, 1984). Sartika et al. (1988) reported that one of the advantages of rearing the animals is that agriculture waste product and various types of forages could be fed to the animals. So, to state the animals, local sources can be used to feed it. Nuryasa et al. (2015) reported that the animal could be fed with some typesof forages that were combined with agriculture industry waste products. Sri Lestari et al. (2005) stated that the animal grow fast and high reproduction, where one cycle of reproduction of an animal could produce 8 – 10 progenies and on the age of 8 weeks they can rich body weight up to 2 kg. Chemical composition of Rabbit meat is good quality, it protein content is 20% and it fat is low i.e. 10% (USDA, 2009). Nuryasa et al. (1016)said that one of alternative to provide cheap and competitive feed is by using waste product of agriculture, livestock and agriculture industry. One of the waste product which can be used for concentrate feed is coffee skin that contain high enough nutrient for Rabbit, cheap price and available all the time in order to decrease production cost.

Potential of coffee skin per 10,000 m² is 4,1182.24 ton. This can be used for animal feed. Through fermentation process with *Aspergillus niger*, its protein content could be increased from 9.94 % up to 17.81 %, crude fiber content is decrease from 18.74 % up to 13.05 % (Budiari, 2009). According to Bidura (2007) that fermented feed could increase protein and energy contents, but its crude fiber decreased. Parwati *et al.* (2008) said that coffee skin fermented with *Aspergillus niger* could replace rice bran that usually is used as concentrate feed for cattle. This matter showed that through technology approach the coffee skin could be made better quality of feed.

Information about economic study of fermented coffee skin as Rabbit feed up to now is not available yet. So that, this time is good opportunity to do analysis financial study of local Rabbit livestock business using coffee skin waste as animal feed.

MATERIAL AND METHODS

Experimental Design

he experiment was conducted at Gulingan Village, Mengwi District, Badung Regency. It was conducted for 16 weeks with design of Randomized Block Design, 5 treatments i.e. Rabbit fed with feed without coffee skin (R0 = controle), 10% coffee skin (R1), 20% coffee skin (R2), 10% fermented coffee skin (R3) and 20% fermented coffee skin (R4). Each treatment was replicated for 8 times so, total of them were 40 units. The experiment used 40 local male Rabbits on the age of 5 weeks.

Experimental Variables

Body Weight

Weigh was conducted once in a week to know weight gain per week of the animals. Initial body weight was found through weigh method at the beginning of the experiment before the animals was treated, but to know its final body weight it was conducted at the end of the experiment. Weight gain was found through final body weight minus initial body weight at the beginning of the experiment. The animals were fasted for 12 hours before they were weighed weekly.

Feed Consumption

Feed consumption was calculated every week i.e. the amount feed offered to the animal mines it rest at that day. Total feed consumption was found by sum up feed consumption every week during the experiment.

Animal of the Experiment

There were 40 weaned male local Rabbit (on the age of 5 weeks) used in the experiment as what the treatments and replications were planed. Before the animals were put into shelters they previously injected with 0.2 ml ivomek per head to protect them from various parasites (Hon *et al.*, 2009).

Ingredient (%)	Treatment				
	RO	R1	R2	R3	R4
Yellow corn	2.,00	23.00	23.00	22.00	20.50
Coconut waste	14.50	13.00	10.50	10.00	6.50
Fish mill	6.50	6.50	7.00	6.00	5.00
Tapioca miil	4.00	4.00	4.00	4.00	4.00
Soy beam mill	6,50	6,55	6,10	5,50	5,15
Rice bran	15,00	12,45	10,00	16,00	16,05
Elephant grass	25,00	22,00	18,90	24,00	22,30
Unfermented coffee skin bran		10,00	20,00		
Fermented coffee skin bran				10,00	20,00
Coconut oil	4,00	2,00	0,00	2,00	0,00
Fish mill	0,50	0,50	0,50	0,50	0,50
Total	100	100	100	100	100

Tabel 1. Ingedient Composition of the Experimental Feed.

Tabel 2. Nutrient Content of the Experimental Feed.

Nutrient	Treatment					Standard
	RO	R1	R2	R3	R4	NRC (1977)
TDN %	64.83	64.85	65.00	64.65	64.73	65
ME(Kkal/kg)	2506.11	2519.72	2553.34	2523.40	2554.14	2500
CP %	16.00	16.01	16.00	16.01	16.02	16
Crude Fat %	10.08	7.83	5.60	7.29	5.57	2
CF %	13.14	13.48	13.65	13.47	13.64	10-14
Ca %	0.35	0.39	0.42	0.41	0.46	0.4
P %	0.62	0.59	0.55	0.64	0.66	0.22
Lysine %	0.62	0.59	0.55	0.55	0.48	0.65
Metyonine +						
sistine	0.40	0.38	0.35	0.35	0.30	0.6
Isoleusine %	0.61	0.58	0.55	0.54	0.47	0.6
Leusine %	1.99	0.93	0.87	0.89	0.77	1.1
Phenilalanine+T						
yroxine%	1.99	0.88	0.81	0.84	0.73	1.1
Treonine %	0.48	0.45	0.41	0.42	0.37	0.6
Triptofan %						
Triptophan %	0.12	0.11	0.10	0.10	0.09	0.2
Valine %	0.63	0.59	0.54	0.55	0.48	0.7

Explation: Calculation base on National Research Council/NRC (1977).

Feed and Drinking Water

Feed ingredients and it composition in the experiment were yellow corn, fish meal, rice bran, coconut waste product, soy bean meal, elephant grass, tapioca meal, coffee skin, fermented coffee skin, coconut oil and bone meal. Feeds offered to the animals were same energy content and protein where its crude fiber content was 16% and it metabolic energy was 2500 kcal/kg (NRC, 1977). The ingredients that compose the feeds and their nutrient contents were as follows (see Table 1 and 2).

Shelter of the Experiment

The experiment used a shelter where its roof was consisted of asbestos. The size of it was 5 m x 10 m and hight of its wall was 3 m. It lies at Gulingan Village, Mengwi District, Badung Regency. There were some shelter unit in it. Each unit was 70 cm length, 50 cm wide and 45 cm hight. The shelter formed scaffolding with 75 cm hight above ground level as rrcomended by Nuriyasa (2012). **Business Financial Analysis**

According to Kadariah *et al.* (1999) that financial analysis is business analysis that observe from organization or people point of view who are invest their capital in business. In financial analysis which is needed to pay attention is equity capital that was invested in business, results that must be received by farmers, businessmen, private company, government institutions or whoever needs it for developing their business. This analysis is important in order to motivate people who gathering in successfully of trading. In general, there is no usefulness of business if no any activities of farmers, so production is getting worst. Financial analysis is a study to score an activity whether it is proper or not from financial aspect (Soekartawi, 2006). According to Gittinger (1986) that a trading can be seen when it gives financial advantage, but it will be stated not proper if there is no any financial advantage. One of methods to see properly of financial is cash flow method. Reason to use this method is time effect to money exchange during trading activities. Cash Flow analysis is conducted after its component is determined and its value is find out. Those components are grouped into 2 groups are revenue and expenditure. Proper conditional financial use is R/C ratio and Break Even Point (BEP).

R/C ratio Analysis

R/C ratio (revenue per cost ratio or comparison between revenue and cost. According to Cahyono (2002) that revenue and great agro business profit is not always reflection of efficiency level of high business. R/C ratio analysis can be used to identify the efficiency of the agro business. Revenue ratio of production cost can be used to measure relative profit level of agro business activity. It means revenue ratio figure of that expenditure can be known whether an agro business is profit or loss. According to Kadariah (1997) that to know proper level of a trade can be used a parameter i.e. measurement of acceleration revenue divided by acceleration of expenditure where

R/C Rasio >1: proper R/C Rasio = 1 : break even point R/C Rasio <1 : not proper

Data Analysis

Data of the experiment were analyzed with Anova. If there are significant different (P < 0.05) among treatments, analysis would be continued with Duncan multiple range test (Steel and Torrie, 1980). While to know proper level of agro business it is conducted through Revenue cost analysis (R/C ratio). If R/C ratio > 1, that agro business is proper to be aplicated. On the other hand, if R/C ratio < 1, that agro business is not proper to be aplicated (Soekartawi, 2002).

Feed Cost per Gain (FC/G) was feed cost that used to increase1g weight gain. Results of calculation of FC/G of the experiment were Rp 12.78/g (R0), Rp 12.96/g (R1), Rp 13.41/g (R2), Rp 11.42/g (R3) and Rp 12.51/g (R4). Treatment R3 was the lowest FC/G (11.42/g). It means feed cost was needed to produce 1 g body weight was the cheapest compare to others.

Those analysis data showed that 20% unfermented coffee skin, 10% and 20% fermented coffee skin were proper to be implemented, but it needs appropriate approach to farmers to make sure famers because there are more task that they would be done.

No	Item	Volume	Unit	Treatment					
NO				RO	R1	R2	R3	R4	
1	Input component								
а	Suitable (Rp)	8	head	160.000	160.000	160.000	160.000	160.000	
	Feed price (Rp)	1	kg	3.706	3.522	3.362	3.371	3.072	
	Feed								
	consumption	8	head	25.24	28.00	29.00	27.40	30.81	
b	Feed cost		Rp	93.539	98.616	97.498	92.365	94.648	
	Cemistry and								
С	vitamin	0,1	Rp	1.000	1.000	1.000	1.000	1.000	
d	Labour	1.25	НОК	62.500	62.500	62.500	62.500	62.500	
	Decrease of								
е	shelter and tools	2	months	33	33	33	33	33	
	Total input cost								
	(a+b+c+d+e)			317.073	322.149	321.031	315.899	318.182	
2	Input revenue								
	The end of								
	Rabbit wight (kg)	8	head	9.57	9.45	10.19	11.05	9.73	
	Price/kg of live								
	weight (Rp)	1	head	35.000	35.000	35.000	35.000	35.000	
	Total revenue								
	(Rp)	8	ekor	334.985	330.890	356.510	386.680	340.655	
3	Income		Rp	17.912	8.741	35.479	70.781	22.473	
	R/C ratio (2/1)			1.06	1.03	1.11	1.22	1.07	

Table 3. Agro businees Analysis of Rabbit Fattening for 8 Heads.

RESULTS AND DISCUSSION

Base on sale value at the end of fattening on the Rabbit fed treatment with10% additional of fermented coffee skin (R3) produced the highest profit with R/C ratio 1.22 followed by R2 (1.1), R4 (1,07), R0 (1.06) and R1 (1.03) as Table 3. Profit increased on R3, R2, and R4 were due to output increased as result of growth rate of the animal. Coffee skin offered to the animal as feed component caused decreased of feed price about 4.96% up to 17.11%.

CONCLUSION

Coffee skin as one of feed component composition was proper economically to implement it because capable to decrease feed cost for 1.26% and its R/C was 1.22.

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