



# Business Analysis Study Viewed From The Feed of The Ewe At Juara Agroniaga Farm (After Adopt SNI Feed)

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## ABSTRACT

This research aims to study the business analysis after adopting SNI feed, at PT Juara Agroniaga farm located in Kanor District, Bojonegoro Regency, East Java. The business analysis observed is particularly related to feed, namely feed consumption, feed conversion and Income Over Feed Cost (IOFC). The feed provided to the farm is complete feed based on local feed ingredients available around the farm. This research was carried out from June to August 2023. The materials used in this research were 200 head of ewes aged 1 to 2 years with a body weight of  $\pm$  35 kg. Ewes were placed in 10 groups of pens, each pen containing 20 sheep. The dry complete feed provided contained 9.71% CP, 59.36% TDN and 64.58% NDF. The research results showed that fresh feed intake was 0.75 kg/head/day, ADG was 60.41 g/head/day and feed conversion was 13.86. Meanwhile the feed price is IDR 1940,-/kg, and assuming the live weight price of ewe is IDR 62,000,- then the IOFC is IDR 2199,-/head/day. It can be concluded that feed management applied at PT Juara Agroniaga's sheep breeding farm after MF or after adopting SNI formula has better chemical composition values. In view from the economic analysis, after the MF program the FCR and IOFC values are also very good.

**Keywords:** *Economic analysis, Mature ewes, Feed conversion, Income Over Feed Cost*

## 1. INTRODUCTION

Sheep is one of the livestock that produce meat, however sheep productivity on local farms is still relatively low. Meanwhile, demand for meat, including sheep's meat, continues to increase. The low productivity of sheep on local farms is caused by conventional rearing methods with a feeding system that relies on forage available without paying attention to its quality and quantity. [1] reported that total demand for domestic goat meat and lamb over the next five years is projected to rise 1.90% per year. In 2019 the total availability for consumption of goat meat and lamb is estimated at 85.29 thousand tons and continues to experience an increase to reach 91.96 thousand tons in 2023. This increase was caused by an increase in per capita consumption as well as total population.

Based on this, it is necessary to increase the sheep population. One of the strategies is to build a sheep breeding farm. PT Juara Agroniaga can bridge the farmers (plasma) and the investors (nucleus). The farmers provide land and barn and the investors can provide another facility needed and also guide the farmers in the breeding process. This farm does the breeding business of sheep, so the Feed given in this farm must be in accordance with nutrients requirement (SNI). At this farm, feed is provided based on local feed ingredients, especially agricultural by-products and agroindustrial by-products (abundance and low price). This study aimed to review the business analysis, viewed from the feed cost that was applied by PT Juara Agroniaga Farm's breeders.

## 2. MATERIALS AND METHODS

### 2.1. Research Location

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Y. A. Yusran et al. (eds.), *Proceedings of the 2023 Brawijaya International Conference (BIC 2023)*, Advances in Economics, Business and Management Research 294,

[https://doi.org/10.2991/978-94-6463-525-6\\_81](https://doi.org/10.2991/978-94-6463-525-6_81)

This study was conducted at PT Juara Agroniaga, Simbatan Village, Kanor District, Bojonegoro Regency, East Java. Data collection was carried out from July to September 2023. Chemical composition analysis of feed conducted at Animal Nutrition and Feed Laboratory, Faculty of Animal Science, Universitas Brawijaya.

## 2.2. Research Materials

### 2.2.1. Animals

The materials in this study were 54 Fat-Tailed Ewe sheep, aged 9 – 12 months and weight of 15 – 19 kg.

### 2.2.2. Feed

The type of feed given to livestock is a complete feed consisting of fiber-sourced feed ingredients namely coffee husk, peanut shell, corn tumpi, soybean straw, cassava peel, corn stover and concentrate sourced ingredients namely corn seed, pollard, sawit meal, pellet sawit meal, copra meal, rice bran, tofu waste, CGF, molasses, salt and mineral lime. The chemical composition of feed ingredients can be seen in Table 1 and proportion and chemical composition of complete feed after MF project can be seen in Table 2.

**Table 1.** Chemical composition of feed ingredients

Feed Ingredients	Chemical Composition							
	DM (%)	Ash	OM	CP	EE	CF	TDN	NDF
	(% DM)							
Corn Stover	23.21	13.26	86.74	9.24	2.16	28.22	63.72	27.45
Cassava Peel	29.64	10.48	89.52	4.02	1.28	17.10	54.91	32.47
Soybean Straw	88.62	7.29	92.71	3.54	0.32	47.76	60.43	79.70
Corn Tumpi	90.48	6.78	93.22	6.83	0.71	21.66	58.53	87.80
Peanut Shell	88.28	5.13	94.87	6.14	0.08	53.10	48.60	66.40
Coffe Husk	90.72	10.32	89.68	9.02	2.80	21.74	50.60	61.80
Corn Seed	91.32	2.10	97.90	8.69	4.27	2.20	67.34	16.73
Pollard	89.65	6.62	93.38	14.83	5.32	11.27	70.23	37.83
Rice Bran	88.73	5.34	94.66	8.42	3.23	9.65	79.24	10.26
Sawit Meal	89.83	10.41	89.59	15.04	3.11	28.54	65.64	73.60
Pellet Sawit Meal	89.83	10.41	89.59	15.04	3.11	28.54	65.64	73.60
Copra Meal	91.73	8.81	91.19	22.32	2.78	18.76	65.52	54.70
Tofu Waste	12.31	3.81	96.19	22.37	4.12	25.34	61.12	31.34
CGF	91.55	7.45	92.55	23.78	8.74	6.89	79.66	41.64
Molasses	72.24	9.46	90.54	3.42	0.23	0.00	63.21	0.80
Salt	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mineral Lime	90.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Nutrition and Animal Feed Laboratory, Faculty of Animal Sciences, Universitas Brawijaya (2023).

**Table 2.** Proportion of complete feed

Feed Ingredients	Proportion (% DM)
Corn Stover	51.93
Cassava Peel	2.01
Soybean Straw	1.82
Corn Tumpi	3.04
Peanut Shell	3.34
Coffe Husk	4.86
Corn Seed	1.82
Pollard	4.86
Rice Bran	6.08
Sawit Meal	6.08
Pellet Sawit Meal	6.08
Copra Meal	3.04
Tofu Waste	0.18
CGF	4.86

**2.3. Research Methods**

This study method used is observation or case studies in the farm owned by PT Juara Agroniaga sheep breeders. The 54 Fat-Tailed Ewe sheep were replaced in 3 group cages, with each cage containing 18 sheep. Feed intake observations was conducted every day for 8 weeks. Feed offered and feed refusals were sampled daily and bulked over each week for the duration of experiment, the composited for the proximate analysis in laboratory [2]. Body weight was weighed every 2 weeks. The review the business analysis viewed from the Average Daily Gain (ADG), Feed Conversion Ratio (FCR) and Income Over Feed Cost (IOFC). The data obtained were tabulated using Microsoft Excel than analyzed using descriptive analysis.

**3. RESULTS AND DISCUSSION**

**3.1. Chemical Composition Of Complete Feed**

The chemical composition of feed given to sheep before and after the MF project can be seen in Table 3.

**Table 3.** Chemical composition of complete feed

Complete Feed	Chemical Composition (% DM)		
	CP	TDN	NDF
Before MF	9.62	57.17	69.49
After MF	11.07	68.16	38.86

Based on Table 3. It can be seen that the chemical composition of feed given to sheep before the MF project was the content of CP 9.62%, TDN 57.17% and NDF 69.49% still did not meet the SNI for breeding sheep. According to SNI-8819 [3], the feed for ewes must contain a maximum water content of 13%, minimum CP 10%, minimum TDN 60% and maximum NDF 35%. Meanwhile, the chemical composition of feed after the MF project was the content of CP 11.07%, TDN 68.16% and NDF 38.86%. The implication of this results after the MF project, parameters such as feed intake and ADG would be better. Feed quality is a very important factor to pay attention to when raising livestock, this is because feed can directly affect the productivity produced. Quality feed can meet nutrient requirements, so that production can be optimal.

**3.2. Average Daily Gain (ADG)**

The quality of feed given can be measured through the average daily gain of the livestock produced. ADG occurs when livestock are able to convert the nutrients contained in feed into livestock products such as fat and meat, after basic living needs are met. ADG of sheep are presented on Table 4.

**Table 4.** Average daily gain (ADG) before and after Matching Fund program

Flock	ADG (g/head/day)
Before MF Project	
Flock 1	52.14
Flock 2	42.78
Flock 3	45.75
Flock 4	58.96
Flock 5	52.03
Flock 6	33.29
Flock 7	43.60
Flock 8	34.89
Flock 9	30.99
Flock 10	33.27
Average	42.77 ± 9.581
After MF Project	
A	45.49
B	79.10
C	99.67
Average	74.75 ± 2.730

ADF of sheep before the MF project ranged between  $42.77 \pm 9.581$  g/head/day and after the project increased to  $74.75 \pm 2.730$  g/head/day. The difference in ADG values can be caused by genetic and environmental factors as well as the interaction of the two. Genetics are internal factors found in the physiology of the livestock itself. Environmental factors are external factors that can influence livestock productivity, including the quality of the feed provided, the level of palatability and feed intake. [3] reported that the better quality of the feed consumed by livestock, the more efficient the use of the feed will be, so that protein and energy intake will be higher, followed by a faster growth rate.

### 3.3. Feed Conversion Ratio (FCR) and Income Over Feed Cost (IOFC)

Feed Conversion Ratio (FCR) is a comparison between the amount of feed intake by livestock and ADG. The FCR value can reflect the level of feed efficiency provided during maintenance. FCR and IOFC before and after the Matching Fund program can be seen in Table 5.

**Table 5.** FCR and IOFC of sheep

Flock	Parameters	
	FCR	IOFC (Rp/head/day)
Before MF Project	13.863	2,199.00
After MF Project		
A	17.59	2,956.73
B	10.11	5,141.63
C	8.03	6,478.33
Average	11.91	4,858.90

Average of FCR value before MF program was 13.863 with IOFC Rp 2,199,00 meanwhile FCR after project 11.91 with IOFC Rp4,858,90. Differences values of FCR can be caused by type of feed given, the level of feed intake and the ability of livestock to utilize feed. The higher FCR value indicates that more feed is needed to increase the animal's body weight per unit weight. [4] reported that FCR can be used to determine production efficiency because it is closely related to production costs, the lower the feed conversion value, higher the efficiency of feed used.

## 4. CONCLUSIONS

Based on the result of this study, it is concluded that:

1. Feed management applied at PT Juara Agroniaga's sheep breeding farm after MF or after adopting SNI formula has better chemical composition values.

2. In viewed from the economic analysis, after MF program the FCR and IOFC values are also very good

## 5. RECOMMENDATIONS

1. It is better that the complete feed given to the ewe should be adjusted to the nutritional needs of the ewe according to the physiological stage which refers to the SNI minimum standards.
2. Nutrient-rich feed should be given especially during the prior partum and postpartum periods.

## AUTHORS' CONTRIBUTIONS

Mashudi designed the research, formal analysis, data curation and writing (original data, review and editing). Poespitasari Hazanah Ndaru, M. Halim Natsir, Veronica Margareta Ani Nurgiartiningsih, M. Pramujo and Irida Novianti designed the research and conducted the analysis.

## ACKNOWLEDGMENTS

The authors wished to thank the Directorate General of Higher Education, Research and Technology, Ministry of Education, Culture, Research and Technology, Republic Indonesia, for providing the Matching Fund Program 2023 that enabled this research.

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