

STUDY OF COMBINATION FEEDSTUFF BASED ON OIL PALM PLANTATION AND AGRICULTURE BY-PRODUCT IN FEED FOR LAMB IN NORTH SUMATRA

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ABSTRACT

The aim of this research was to study about combination feedstuff base on oil palm plantation and agriculture by-product on a performance of lamb for three months. Eighteen lamb (6-8 months of aged) with an initial average body weight 23.90 ± 2.60 kg were randomly divided into three treatment groups, each treatment consist of six replication and each replication consist of one lamb This research method used in a completely randomized design (CRD). The treatment was R_1 = Feed which was feedstuff base on oil palm plantation by-product, R_2 = Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with molasses as source of energy and R_3 = Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with cassava as source of energy, respectively. The parameters were feed intake, average daily gain and feed conversion ratio. The result of this research indicated that feed intake (g/head/day) (840.51, 844.04 and 836.31, respectively) and average daily gain (g/head/day) (81.42, 86.18 and 66.18, respectively) were not significantly different ($P > 0.05$) but feed conversion ratio (10.43, 11.14 and 13.10, respectively) was significantly different ($P < 0.05$)

Key Words : By-Product, Lamb, Feed Intake, Average Daily Gain, Conversion Ratio

INTRODUCTION

Availability of feedstuff is one of the factor that important in effort of animal husbandry development. Green forage are the main feed for ruminant in the tropics has low quality. Production of green forage as main feedstuff for ruminants were limited. This is caused by development in land for food plant (Sutardi, 1977).

Agriculture by-product and oil palm plantation by-product were potential to fulfill the requirement of fibrous feed for ruminants besides this by-products were abundant, cheap, reduce a pollution and available (Aritonang, 1986).

By-product of oil palm plantation and agriculture can be used for sheep feeding although the type of their by-product and their nutrient contents or nutritional values are very various. It depends on the climate of each area (Utomo *et al.*, 1988). Studies have been conducted to evaluate the use of some feedstuff derived from by-product as feed supplement for ruminant.

Ruminant have some advantages compared to monogastric animals, such as the ability to digest high fiber feedstuff for their benefits with the help of microorganisms in the rumen. Based on those reason, the research was conducted to study the combination feedstuff base on oil palm plantation and agriculture by-product on a performance of lamb.

MATERIALS AND METHODS

Eighteen lamb(6-8 moths or aged) with an initial average body weight 23.90 ± 2.60 kg were randomly divided into three treatment groups, each lamb was placed in an individual pen, the method used in a completely randomized design (CRD). The treatment was $R_1 =$ Feed which was feedstuff base on oil palm plantation by-product, $R_2 =$ Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with molasses as a source of energy and $R_3 =$ Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with cassava as a source of energy, respectively.

Feedstuff which was used in this research such as : Oil palm frond, sludge, palm kernel cake, palm coconut cake, rice brand, straw, cassava waste, molasses, urea, dicalcium phosphate and salt. Oil palm frond chopper and grinder before used. Nutrient of ransom consist of TDN 60.40% and crude protein 13.44%. Its can be shown in Table 1, 2 and 3

Table 1. Feed which was feedstuff base on oil palm plantation by-product

Feedstuff	(%)	CP (%)	CF(%)	TDN(%)
Oil palm frond	44.75	2.42	15.72	17.90
Palm kernel cake	45.25	7.24	7.24	36.65
Sludge	7.45	0.65	1.19	5.81
Urea	1.55	3.13	-	-
Salt	0.5	-	-	-
Mineral	0.5	-	-	-
Total	100	13.44	24.15	60.43

Table 2. Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with molasses as a source of energy

Feedstuff	(%)	CP (%)	CF (%)	TDN(%)
Oil palm frond	38.05	2.06	13.57	15.22
Rice brand	25	2.97	2.12	16.75
Palm coconut cake	29.20	6.13	4.38	23.65
Molasses	5.50	0.03	0.02	4.5
Urea	1.25	2.53	-	-
Salt	0.5	-	-	-
Mineral	0.5	-	-	-
Total	100	13.72	20.27	60.12

Table 3. Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with cassava as a source of energy

Feedstuff	(%)	CP (%)	CF (%)	TDN(%)
Oil palm frond	33.40	1.81	11.74	13.36
Straw	9.40	0.24	3.24	3.76
Palm coconut cake	37.25	7.82	5.58	30.17
Cassava waste	17.25	0.10	2.07	13.11
Urea	1.70	3.43	-	-
Salt	0.5	-	-	-
Mineral	0.5	-	-	-
Total	100	13.44	22.68	60.40

R1=Rp.466.95/kg; R2= Rp.885.35/kg ; R3=Rp.797.85/kg

RESULTS AND DISCUSSION

Table 4. Recapitulation the result of research for three months

Treatment	DM Feed intake g/head/day	ADG g/head/day	Feed conversion ratio	IOFC (Rp)
R1	840.51 ^{ns}	81.42 ^{ns}	10.43 ^a	69426 ^a
R2	844.04 ^{ns}	86.18 ^{ns}	10.14 ^a	50257 ^a
R3	836.82 ^{ns}	66.18 ^{ns}	13.10 ^b	32030 ^b

^{ab} Different superscript in the same row showed a significant differences (P<0.05)

^{ns} non significant differences (P<0.05)

R1= Feed which was feedstuff base on oil palm plantation by-product

R2= Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with molasses as source of energy

R3= Feed which was feedstuff base on combination between oil palm plantation and agriculture by-product with cassava as source of energy

The result (Table 4) showed that DM intake g/head/day (840.51;844.04 and 836.82, respectively) and ADG g/head/day (81.42;86.18 and 66.18, respectively) of lamb which fed oil palm plantation and agriculture by-product with cassava waste as source of energy was lowest and the highest DM intake and ADG of lamb which fed oil palm plantation and agriculture by-product with molasses as source of energy, but statistically both of them were not significantly different (P>0.05). The lowest value of feed conversion ration of lamb which feedstuff base on combination between oil palm plantation and agriculture by-product with molasses as a source of energy (R2) was 10.14. Its mean that treatment R2 more efficient than R1 and R3 for utilized of feed. Its cause by molasses and urea used in this treatment which can increase palatability and manipulate microorganism in the rumen. (Churh dan Pond, 1988). Statistically R1 and R2 significantly different (P<0.05) with R3 (10.43; 10.14 and 13.10, respectively)

CONCLUSION

Based on the result of the present experiment, it was concluded that oil palm plantation by-product can be use for lamb feedstuff, because its could improve lamb performance besides abundant, available and cheap.

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