

Feeding Strategy For Fattening Sheep From a Prolific Line

B. Sudaryanto, H. Setiyanto, I. Inounu and B. Haryanto

Balai Penelitian Ternak, Ciawi-Bogor
Indonesia

ABSTRACT: An experiment has been conducted to evaluate the feeding strategy for fattening prolific sheep. Four types of ration (R1, R2, R3 and R4) were tested. Twenty lambs, after weaned, males were used. The objectives were to find out the efficient ration which could support the growth rate of more than 100 g/d. The rations were formulated from such feedstuffs as corn, soybean meal, coconut meal, wheat pollard, rice bran, dried grass, cassava leaves, salt and minerals. The control ration (R1) was a mixture between commercial concentrate (GT-03) and napier grass. The rations were offered at 3.5 to 4.5% of the body weight and adjusted every week.

Weight changes, feed intake, feed conversion and carcass characteristics were recorded. Data were analyzed in a completely randomized design. Results indicated that the weight gain was significantly different among treatments ($P < 0.05$). Feed conversions were R1= 0.112; R2= 0.117; R3= 0.123 and R4= 0.111. Carcass percentage were higher in R1 and R2 (49.4 and 49.6%) as compared to R3 and R4 (42.6 and 46.4%). The protein and fat contents of the meat were similar among treatments. It was concluded that R2 and R3 may be recommended for further used rather than R1 and R4.

Key Words: Fattening, Sheep, Prolific

Introduction

Feed is one of the important factor which determine development of animals. Feed which has adequate nutrients for the requirement of animals whether its quality or quantity will produce good production performance of animals. An experiment on average daily gain (ADG) of sheep under traditional condition (feeding) showed that ADG of sheep could reach 40 g/day (Chaniago et al., 1984). According to Haryanto (1992) ADG of sheep can reach 100 g/day if they were given good ration i.e. meet the nutrients requirement for animals. The quantity and quality of feed given to the animals greatly determine the growth rate and raise of body weight. The highest cost of production in sheep fattening is feed, so that it is necessary to find out better feeding strategy for sheep. In the study 4 different ration using several feedstuffs would be given to sheep.

Material and Methods

twenty male and wived sheep (\pm 3 month old) with 15.3 kg of average body weight were used in

this experiment. Four different rations were given to the sheep for 17 weeks. First ration (R1) as a control consisted of commercial concentrate (GT-03), elephant grass (*Pennisetum purpureum*). The ratio of concentrate and grass was 2:1, whereas the other three rations were consisted of several feedstuffs as showed in the Table 1.

The ration was given to the animals amounting to 3.5 - 4.5% of body weight per day. The amount of feed given was adjusted weekly based on the increase of their body weights. Chemical composition of each ration was analysed chemically and the data was presented in Table 2. Beside that, calculation of chemical composition of each rations was carried out. However, result of the chemical analyses of ration was slightly different with the result from the calculation of each rations. Drinking water was provided continually, sheep body weights were weighed weekly and feed consumption was recorded daily. In the end of experiment the feeding treatment, the animals were slaughtered to obtain the carcass and its feeding. Data obtained were analysed statistically using analysis of variance completely random design (Steel and Torrie, 1980).

Table 1. Composition of ration (%)

Ingredients	R1	R2	R3	R4
Commercial concentrate (GT-03)	66.7	-	-	-
Elephant grass	33.3	-	-	-
Ground corn	-	20.0	20.0	22.0
Soyabean meal	-	12.5	12.5	12.0
Coconuts meal	-	2.0	-	-
Pollard	-	47.5	51.5	50.0
Dried grass	-	17.0	15.0	-
Rice bran	-	-	-	3.0
Cassava leaves	-	-	-	12.0
Salt	-	0.5	0.5	0.5
Mineral	-	0.5	0.5	0.5

Table 2. Chemical composition of feedstuffs

Feedstuffs	DM ¹	CP ²	Fat	NDF ³	ADF ⁴	E	Ash	Ca	P
GT-03	88.22	16.78	8.00	38.35	14.75	4360	7.67	1.05	0,78
Grass	22.31	10.58	1.89	71.37	45.39	3263	13.75	0.46	0,38
R2	88.67	20.09	4.74	38.84	16.13	4115	8.19	0.28	0,70
R3	89.07	18.44	4.32	42.45	18.17	3819	9.08	0.42	0,70
R4	88.33	18.35	4.23	33.41	13.36	4325	7.54	0.29	0,80

1 Dry matter (%)

2 Crude protein (%)

3 Neutral Detergent Fiber (%)

4 Acid Detergent Fiber (%)

E Energy (cal)

Results and Discussion

The average feed consumption (as fed) of sheep given R1, R2, R3 and R4 rations were 805, 1003, 1030 and 985 gr. per head per day respectively. Figure 1 showed the feed consumption of sheep in graph.

The average daily gain (ADG) of sheep which fed ration R1, R2, R3 and R4 were 87.6, 118.7, 126.1 and 109.4 grams per head per day. Result of statistical analyses showed that the treatment of ration influenced ADG of sheep ($P < 0.05$). However, feed conversion did not differ among the ration treatment ($P > 0.05$). They were 0.112, 0.117, 0.123 and 0.111 for rations of R1, R2, R3 and R4 respectively.

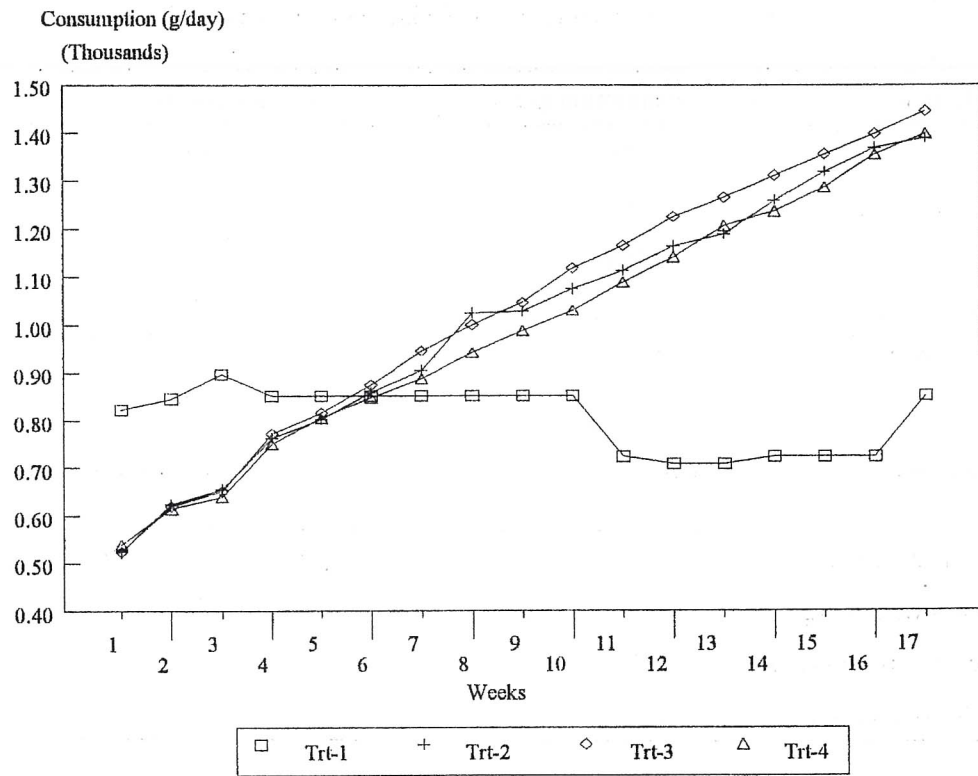


Figure 1. Feed consumption of sheep for 17 weeks

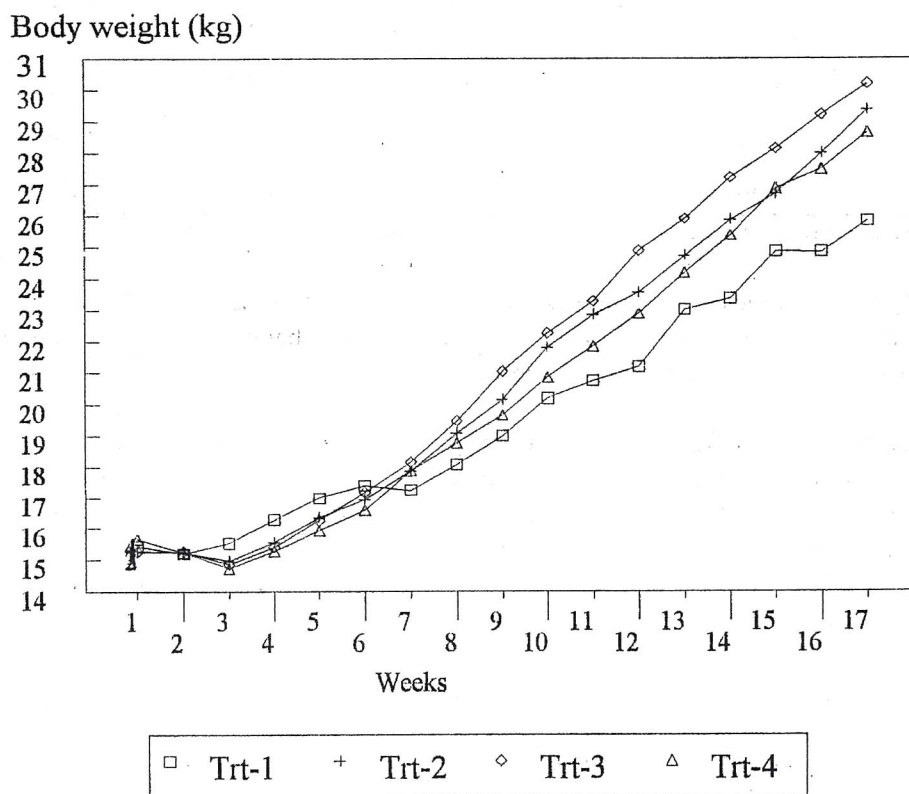


Figure 2. Body weight of sheep for 17 weeks

Table 3. Feed consumption, ADG and feed conversion of sheep.

Ration	Feed consumption g/day	ADG g/head/day	Feed conversion
R1	805	87.6 ^a	0.112
R2	1003	118.7 ^b	0.117
R3	1030	126.1 ^b	0.123
R4	985	109.4 ^b	0.111

^{a,b} different superscript on the same column indicated significant different (P<0.05)

Table 4. Carcass characteristics

Parameter	R1	R2	R3	R4
Slaughter weight (kg)	31.0	34.7	37.5	35.3
Carcass weight (kg)	13.3	16.1	18.5	17.5
Carcass percentage (%)	42.9	46.4	49.4	49.6
Fat thickness (mm)	4.0	5.0	6.5	7.0

Table 5. Meat quality (%)

Ration	Water	Protein	Fat	Ash	pH	Fat thickness
R1	75.38	20.53	1.17	1.18 ^a	5.64	40.06
R2	75.74	20.21	1.67	1.12 ^a	5.54	46.57
R3	74.34	21.26	1.58	1.23 ^b	5.54	47.47
R4	75.36	20.79	1.55	1.11 ^a	5.561	47.43

^{a,b} different superscript on the same column indicated significant different (P<0.05).

Although the treatments of ration did not affect the weight gain of sheep rations of R2 and R3 tended to produce weight gain more efficient than rations of R1 and R4 (P>0.05).

Characteristics of carcass such as carcass weight, and its %, fat thickness were showed and they were presented in Table 4. Carcass percentage of R1 and R2 (49.4 and 49.67%) were higher than R3 and R4 (42.9 and 46.4%).

Data of meat quality was presented on Table 5. Results of statistical analyses of the quality of meat from fore leg, hind leg and longissimus dorsi (loin) showed that there were differences DM characteristics of meat especially moisture content, fat content and pH of meat. Meat from longissimus dorsi tended to have lower moisture content and higher fat content than meat from fore leg and hind leg. Type rations given to the sheep influenced the

ash content of meat R2 and R3 tended to yield meat with higher ash content than R1 and R4.

Conclusion

Ration formulation for sheep fattening could be carried out using feedstuffs and formulation as ration R2 and R3 in the experiment.

Literature Cited

- Chaniago, T. D., J. M. Obst, A. Parakkasi and M. Winugroho. 1984. Growth of Indonesian Sheep under village and "improved" management systems. Proc. Sheep and Goats in Indonesia. Puslitbang Peternakan. Bogor. p 109.
- Haryanto, B. 1992. Benefit of nutritional improvement in fattening sheep. IARDJ. Vol. 14 No. 1: 17.
- Steel, R.G.D. and J.H. Torrie. 1980. Principles and Procedures of Statistics. McGraw-Hill Book Co. New York.
- SAS. 1987. SAS user's guide for personal computers. SAS institute. Cary, Nort Carolina. USA.