SUPPORTING PAPERS
ISBN 979-97243-9-2

EFFECT OF FEEDING LEVEL AND QUALITY ON PERFORMANCES OF GROWING FEMALE SHEEP

Winny Swastike[1] and Ali Agus[2]

[1] Faculty of Agriculture, Sebelas Maret University, Surakarta , Indonesia
[2] Faculty of Animal Science, Gadjah Mada University, Yogyakarta, Indonesia

ABSTRACT

This trial was done to evaluate the effect of feeding level and quality on performances of growing female sheep. Ten animals with initial body weight of 14.5 ± 0.8 kg and aged between 4 – 5 months were separated into 2 (two) groups (group of treatment and group of control) and each group consisted of 10 heads and kept for 7 months of feeding trial. Group of treatment (G1) received a natural grass and concentrate and added with peanut straw, while control group (G0) received a natural grass and concentrate. Crude Protein (CP) and Total Digestible Nutrient (TDN) content of feed given to the group of treatment was higher (CP: 11% and TDN 76%) than the group of control (CP:10% and TDN 69%). Data collected was of nutrient intake (DM, CP, TDN) and body weight gain. Data obtained were analyzed using analysis T-test. Data on nutrient intake was significantly higher in G1 than G0 respectively for DM : 75.9 ± 2.22 g/kg^{0,75}/d vs 53.09 ± 3.1 g/kg^{0,75}/d; for CP : 8.61 ± 0.25 g/kg^{0,75}/d vs 5.37 ± 0.34 g/kg^{0,75}/day) and for TDN : 56.20 ± 1.6 g/kg^{0,75}/d vs 36.26 ± 2.6 g/kg^{0,75} d). Result on body weight gain at the end of the trial was significantly higher ($P<0.01$) in G1 than G0 (25.8 vs 14.9 kg) with the average of daily body weight gain was of 52.8 g/head/day compared to 2.2 g/head/day. From this trial, it can be concluded that growing female sheep offered a better quality and level of feeding during 7 months of feeding treatment had a significant effect on body weight gain and resulted the better growing performances.

Key word : Level and quality of feeding, Growing female sheep, Body weight gain

INTRODUCTION

The role of small ruminant including sheep as red meat source to support the supply meat demand in Indonesia is relatively still low. Meat production from sheep is not more than 4 % of total meat demand. Population of Sheep in Indonesia is about 6.7 million head and 23% of this population found in Central Java and Yogyakarta provinces. In the village, people are more customized with mutton rather than beef and generally consumed as grilled meat (*Sate*). To meet the demand of red meat in the future, improving productivity of sheep is primordial. It has been reported that sheep productivity under farm condition is still relatively low (Wodzicka-Tomaszewska, 1993) due to the fact that feeding and management program has been done traditionally by the farmer. These condition result the mediocre result on the growing performance of the animal (Soeparno, 1992). Thus, among the other factors influencing the livestock productivity, feeding has been known to be the dominant factor. Feeding improvement program offer the short term impact to the livestock performances rather than other intervention program such as breeding or genetic improvement. This trial was carried out to evaluate the effect of improved feeding treatment, in term of feeding level and quality, on the productive performances of growing female sheep.

SUPPORTING PAPERS
ISBN 979-97243-9-2

MATERIALS AND METHODS

Twenty post-weaning Javanese-thin tail female sheep, aged in average 4-5 month and live weight of 14,05 ± 0.8 kg were used in this trial for 6 months (from March 31 to September 31, 2004). Animals were divided into two groups of treatment consisting of 10 heads each group. In Group I (Treatment group), animal was given natural grass and supplemented by concentrate in good quality and peanut straw, while in Group II as control group, animal just received natural grass and concentrate bought from the market without addition of peanut straw. The feed and feeding practice in control group considered as representative of the feeding practice done usually by the farmer. At the Group I, animal received slightly higher protein content rather than Group II (CP : 11 vs 10 %DM), while the Total Digestible Nutrient (TDN) in the ration was made higher in Group I than Group II (TDN : 74 vs 69% DM). Data of nutrient intake (DM, TDN, CP), body weight and body weight gain were collected during the trial. All data collected were then analyzed using analysis T-test.

RESULTS AND DISCUSSION

The result of experiment has shown that weight gain on 10-11 month old of the group of treatment average 25,8 kg/h while control average 14,9 kg/h (Table 1), its mean that the weight gain on the group of treatment was significantly higher ($P<0.01$) than control. It also can be observed on Table 3 and the Figure 1 that feeding level and quality affect directly growth performance of the growing female sheep.

As showed at the Table 2, nutrients intake is significantly higher in Group I than Group II. Result on the higher intake is logic due to the fact that the treatment group received the higher level and better quality of feed. When the consumption of DM, CP and TDN of group of treatment was higher than control, it indicated that the nutrients requirement was largely covered. Supplementation of peanut straw improved significantly the growth of young female sheep.

Table 1. Average of first body weight gain, measured at the end of the experiment, and the average body weight gain as long as the experiment.

	Initial body weight (kg/head)	End body weight (kg/head)	Average body weight gain during the trial (kg/head)
Treatment group (Group I)	14,5 ± 0,8	25,8 ± 1,8	19,6 ± 4,1 [a]
Control group (Group II)	14,5 ± 0,8	14,9 ± 1,2	14,4 ± 0,3 [b]

[a, b] Superscript different at the same row differ significantly ($P<0,01$).

Table 2. Nutrients (DM, CP, TDN) intake during the trial

	DM intake	CP intake	TDN intake
Treatment group (Group I)	75,9 ± 2,22 [a]	8,61 ± 0,25 [a]	56,2 ± 1,6 [a]
Control group (Group II)	53,09 ± 3,1 [b]	5,37 ± 0,34 [b]	36,26 ± 2,6 [b]

[a, b] Superscript different at the same row differ significantly ($P<0,01$).

SUPPORTING PAPERS
ISBN 979-97243-9-2

It seems to be less effect on the concentrate supplement since the nutritive composition (CP, TDN) was of almost the same. In the contrary, animal in the control group when they received only concentrate and natural grass, the growth was of mediocre. Based on the trial conducted by Soeparno (1992), the same tendency was also observed. Improved feeding quality for the growing sheep result significantly body weight gain and maturity. Sexual maturity was also found to be early achieved when the feeding treatment was improved. By covering the nutrient requirement will support in the accelerating of the growth of bone, muscle and other organs. The consumption of protein and energy are very importance in the growing phase. Anggorodi (1984) stated that protein was needed to increase body volume that is supported with increasing cell, and protein also supported muscle, bone, fat until brain development. Davendra and Burn (1994) completed that statement with the level of crude protein depend on the kind of feed, type of feed, and to absorb that nutrient depend upon the physiological status of the animal (i.e. metabolic, sex, health condition, environment). It is same like energy requirement, because energy is needed when sheep doing activity. If nutrient (protein and energy) requirement is largely covered, the animal will dispense the nutrient to support the activity and the rest of nutrient is converted into their derived and preserve like fat globulin (Linder, 1985). However, when the animal was undernourished (protein and energy), as the case most likely for the animal in the control group, growing performance was significantly affected. Thus the achievement of sexual maturity was probably also affected (Lindsay, 1992). Unfortunately, during this trial, effect of feeding on the sexual maturity achievement was not specifically observed.

These conditions were supported by the report of Lindsay (1992) explaining that nutrient is the most importance factor to support any condition, because when the nutrients required to grow, to survive and to maintain their-self was not available in their feed, animal will prioritise the nutrient intake for the maintenance with the growth will be the second priority, even the body mobilization will be happened. The limited nutrient availability will imply to the retarded growth and if these condition happen in the young animal that is in the growing period, will provoke the late maturation and thus the low productive performances

CONCLUSION

From the results obtained during the 7 months of feeding trial, it can be concluded that the productive performances of young growing female sheep was depend on the quantity and the quality of feeding. By supplementation of peanut straw, generally available during certain season of harvesting period, improve the growth and body weight gain. Improvement of concentrate quality has an effect on the body weight gain.

REFERENCES

Anggorodi, R. 1984. Ilmu Makanan Ternak Umum. PT. Gramedia, Jakarta.

Davendra, C. And M. Burns. 1994. Goat Produktion in Tropic. Commenwealth Agriculture Bereaux. Farnham Riyal, England.

Direktorat Jenderal Peternakan. 2003. Buku Statistik Peternakan. Diterbitkan Atas Kerjasama Direktorat Jenderal Peternakan Departemen Pertanian Dengan Asosiasi Obat Hewan Indonesia (ASOHI), Jakarta.

Linder, M. C. 1985. Nutritional and Biochemistry. Elsevier Science Publishing Company, Inc.

Lindsay, D. R. 1992The Control Of Fat and Lean Deposition. Butterworth-Heinemann, London.

Santosa, S. 2001. SPSS Versi 11. Alex Media Komputindo. PT. Gramedia, Jakarta.

SUPPORTING PAPERS
ISBN 979-97243-9-2

Soeparno, 1992. Ilmu dan Teknoogi Daging. Gadjah Mada University Press, Yogyakarta

Tillman. A.D., Hartadi, S. Reksohadiprojo, S. Prawirokusumo dan S. Lebdosoekojo, 1984. Ilmu Makanan Ternak Dasar, Cetakan keempat, Gadjahmada University Press, Yogyakarta.

Williamson, G. dan W.J.A Payne, 1993. Pengantar Peternakan di Daerah Tropis. Gadjahmada University Press, Yogyakarta. (Diterjemahkan oleh S. G. N. D. Darmadja).

Wodzicka-Tomaszewska., et al. 1993. Produksi Kambing dan Domba di Indonesia. Sebelas Maret University Press, Surakarta.