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The Growth of Indonesian Local Sheep in Rural Production Systems

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Summary

Eighteen male 0-12 months old local sheep was used in this study for determining the growth performance of Indonesian local sheep in rural are, namely growth rate, body weight and age at reaching puberty and maturity. Regression-correlation analysis was used to obtain the growth curve. The results showed that dry matter intake of the local sheep in rural area was limited, and only giving the daily body weight gain of 57.86 g. The growth curve of local sheep showed the puberty was reached at age of 6 m.o. or at body weight of 17.70 kg, while maturity was reached at 12 m.o. or at BW 31 kg.

Keyword: local sheep, growth curve, rural

Introduction

Sheep is one of dominant meat animals in rural area in Indonesia. Developing this animal for providing farmer the maximum benefit should be based on the actual performance of growth of this sheep in rural area. Many studies to improve the sheep performance were done by feeding manipulation, but the study on the basic data of the growth performance was very limited. This study was aimed to determine the growth curve of local sheep on rural rearing condition. The benefits of this growth curve are able for standardizing sheep performance, for selection and breeding.

Materials and Methods

The study was used 18 male local sheep, aged 0-12 months obtained from Pagergunung village, subdistrict Pringsurat, district Temanggung, Indonesia. The sheep were weighed on a body weight hanging scale, while the age was based on recording or farmer information and teeth condition. These data were analyzed with regression-correlation analysis for determine growth curve based on the knowledge of growth.

Results and Discussion

Indonesian local sheep is believed to be descendants from crosses of Java thin tailed and fat tailed sheep. They were characterized with white coat color, or some with black spotted, and in the top of tail deposited some little fat, and then getting smaller in the tips of tail. In the study area, the purpose of raising sheep originally for obtaining much fertilizer needed for their horticultural farms, but later it was shown to produce meat.

Sheep production systems in rural areas

Sheep production systems in rural areas have been integrated with crop production and farming systems. They are especially dependent on the agro-ecological environment and because of the ruminant digestive systems, must always depend on high fibre vegetation or crop residu for their feed base. Feed was given twice a day consisting of forage and concentrates. Forage given was dependent on the nature and extent of the crop residues produced, while the concentrate feeding was consisted of rice bran, cassava, and by product of coffee industry.

Based on the amount of feed given, it can be calculated that the average of dry matter intake (DMI) of male local sheep at 20 kg body weight (BW) was 970.8 g, crude protein (CP) 121.0 g, respectively. These were below the Nutrients Requirements standard of Ranjhan (1981) for ram at 20 kg BW receiving 1000 g DM, 127 g CP and 560 g total digestible Nutrients (TDN) may give 130 g ADG. The high NDF and ADF were relatively high, being 56.79 and 38.30%, respectively, indicated that the utilization of feed by animal was not high.

Sheep growth curve

The growth curve and growth rate of the local sheep are presented in Figure 1. Owens et al. (1993) stated that the growth curve (mass or cumulative weight plotted against age) is sigmoid, consisting of a pre-pubertal accelerating phase plus a post-pubertal decelerating phase. Based on this curve, birth weight of local sheep was calculated about 3 kg, maturity was reached at age of 12 months and body weight at around 31 kg. The puberty as indicated by turning point of the growth curve (Owens et al., 1993) was occurred at the age of 6 months and body weight about 17.70 kg. Average daily gain (ADG) of local sheep in the rural production systems was 57.86 g with the highest ADG (87.50 g) was achieved at the age of 6 months.

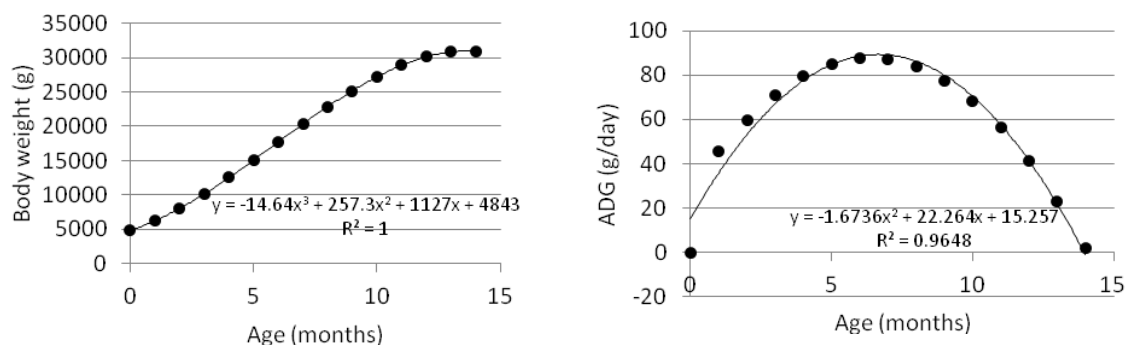


Figure 1. The curve and equation prediction for growth (left) and growth rate (right) of local sheep in rural production systems.

These results lead to the some recommendations for better production management, such as separation of male and female of sheep should be done before the age of 6 months, fattening lambs should be started from age 6 months and slaughtered at age of 12 months. The growth curve showed that at age of 12 months the body weight sheep is keep steady or even start to fall.

References

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