Effect of Feeding Batacomplete Feed Block on Body Weight of Etawah Grade Dairy Goats in Sejati Farm

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Abstract. An experiment was conducted to evaluate the effect of feeding batacomplete feed block on body weight of Etawah Grade (EG) dairy goats. Nine yearling intact female EG dairy goats were divided into three groups, three animals in each group and assigned to one of the three dietary treatments. The dietary treatments were natural grass alone (NG), batacomplete feed block alone (BFB), and batacomplete feed block + natural grass (BFB+NG) on dry matter (DM) basis. Batacomplete feed block was made of mixture of concentrate and agro waste (rice straw) with the composition (%) of concentrate 50, roughage 30 and molasses 20. Body weight (BW) was recorded at weekly interval in the morning before feeding and the feeding trial lasted for 55 days. Data on BW was subjected to one-way analysis of variance using Tukey’s test. No differences in body weight of EG dairy goat groups between BFB (19.83 ± 0.29 kg) and NG (21.08 ± 0.35 kg) dietary regimens was observed. However, EG dairy goat groups in BFB+NG dietary regimen showed a higher (23.80 ± 0.70 kg) \((p < 0.05)\) in body weight than in BCF and NG dietary regimens. In conclusion, BFB alone was found to be a very promising diet in substituting NG in (EG) dairy goats fed low-quality crop residues (rice straw), even combination of BFB+NG increased BW of EG dairy goats under the condition of the current experiment.

Keywords: Etawah grade dairy goats, batacomplete feed block, body weight

1. Introduction

Goats offers good business opportunities in Indonesia because they are very well-adapted to the tropical environment and require low investments. Farmers usually rear a few animals without intensive management, as a living bank for emergencies and expenses and as a source of fertiliser for crops. Goats are also play an important role in the social life of the villagers. They are usually reared to produce meat and milk. One of the dairy goats in Indonesia is Etawah crossbred, i.e. crossing between Etawah and Local kacang goats (Astuti and Sudarman, 2012).
Etawah grade (EG) dairy goats is very important and has tremendous potential in developing the economy of the country. In Mataram, the capital city of West Nusa Tenggara Province, the majority of smallholder EG dairy goat farmers depend entirely on naturally available forage for feeding the animals which are served in a "cut and carry system". In this system, EG dairy goat farmers are facing problem of difficulty in obtaining forages particularly during dry season so that dairy goat’s productivity decreases.

In addition, improper management of feed resources especially that of the bulky and fibrous crop residues such as rice straw is regarded as a factor that contributing to low productivity of EG dairy goats. The utilization of rice straw that locally available can substantially reduce the cost of production of livestock (Santhiralingam and Sinniah, 2018.). Suitable feeding practices and processing technology would enable the livestock farmer to utilize these resources more effectively resulting in better performance of the animals (Karangiya et al., 2016).

In the recent years, the concept of feeding complete rations (CR) comprising of fibrous crop residues to dairy animals are popular among farmers (Santhiralingam and Sinniah, 2018). The role of CR is to provide a blend of the feed ingredients including roughages without giving any choice to the animal for selection of specific ingredient (Konka et al., 2015). Complete feed blocks are solidified high density blocks comprising forage, concentrate and other supplementary nutrients in desired proportion capable of fulfill nutrient requirement of animals (Singh et al., 2016). The technology also has the potential to provide complete feed to livestock under emergency situations created by natural calamities (Santhiralingam and Sinniah, 2018). Therefore this research was carried out to to evaluate the effect of feeding batacomplete feed block on body weight of EG dairy goats in Sejati Farm, Mataram City, Lombok, West Nusa Tenggara Province, Indonesia.

2. Materials and Methods

2.1. Animals

Nine yearling EG dairy goats having an average body weight (BW) of 15.3 kg were purchased from local market. The goats were adapted to the individual pen for two weeks before commencement experiment. The goats were drenched with anthelmintes according to dosage recommended by the manufactures.

2.2. Experimental Design and Treatments

The experiment was conducted in Complete Randomized Design with three treatments. Goats were divided into three groups of three animals each. Animals within each group was randomly assigned to one of the three dietary treatments, namely T1 (batacomplete feed block only), T2 (natural grass only), and T3 (batacomplete feed block + natural grass ). Batacomplete feed block was made of 50% concentrate, 30% rice straw and 20% molasses. Amount of Batacomplete feed block offered was 350 g (± 2-3% of the BW on as fed basis. The grasses were offered ± 10% of BW on as fed basis.

2.3. Growth trial

Data collection was lasted for 55 days. Dietary experiments offered separately, twice a day at 8 A.M. and 4 P.M. The goats were free access to clean water and the amount of feeds offer and refusal recorded daily to estimate the intake. Beginning and end of experiment, goat were individually weighted for 9 consecutive weeks at A.M. before feeding and mean taken as initial and final BW. The
nutrient intakes of experimental animals were calculated as the difference between offered and refused.

3. Results and Discussion

There was no difference in body weight of EG dairy goats between those fed with batacomplete feed blocks and natural grasses. However, body weight of EG dairy goats consumed a combination of batacomplete feed blocks and natural grasses was found to be higher (p<0.05) than that received either Batacomplete feed blocks or natural grasses (Table 1). The same trend also occurred in feed intakes (Table 2). Thus, the administration of batacomplete feed blocks containing low-quality straw waste can substitute for natural grass feeding if its availability during dry season is greatly reduced, although the difference in body weight between administration of batacomplete feed blocks and natural grasses is only 1.19 kg.

A sufficient quantity of roughage in the form of rice straw is essential in batacomplete feed blocks for a healthy rumen (van Ackeren et al. 2009). The current research provides evidence that batacomplete feed blocks influence growth performance and body weight. Dietary intake is one of the most important determinants to measure animal growth performance body weight, and it is closely associated with meeting the necessities for maintenance and production. Factors related to feed intake of the animal are influenced by the quality of the feed as well as animal and climate conditions (Kim et al., 2018). In this study, the daily feed intake was significantly higher in EG dairy goats fed batacomplete feed blocks plus natural grasses compared to EG dairy goats fed unmixed diet components (natural grasses or batacomplete feed blocks only). In the present study EG dairy goats feed intake was significantly higher in EG dairy goats fed natural grasses than that of EG dairy goats consumed batacomplete feed block, which can be explained by the fact that goats are capable of maintaining high intakes even when consuming large amounts of forage (Morand-Fehr, 1981 cited by Maltz et al., 1991).

Table 1. Effect of feeding complete BATAKO on body weight of dairy goats (Mean ± Sem; N = 27)

<table>
<thead>
<tr>
<th>Feeding treatments</th>
<th>Mean ± s.e.m. (kg)</th>
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<tbody>
<tr>
<td>Batacomplete feed block</td>
<td>20.13 ± 0.32&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Natural grasses</td>
<td>21.32 ± 0.36&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Batacomplete feed block + natural grass</td>
<td>24.02 ± 0.6&lt;sup&gt;b&lt;/sup&gt;</td>
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Means in the same column with different superscripts differ significantly (P<0.05)

Table 2. Effect of feeding complete BATAKO on feed intake of dairy goats (Mean ± Sem; N = 27)

<table>
<thead>
<tr>
<th>Feeding treatments</th>
<th>Mean ± s.e.m. (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batacomplete feed block</td>
<td>570.52 ± 26.05&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Natural grass</td>
<td>1441.41 ± 19.35&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Batacomplete feed block + natural grass</td>
<td>2091.02 ± 29.28&lt;sup&gt;c&lt;/sup&gt;</td>
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Means in the same column with different superscripts differ significantly (P<0.05)

4. Conclusions

Complete feed block alone was found to be a very promising diet in substituting natural grass in Etawah grade dairy goats fed low-quality crop residues (rice straw), even the combination of complete
feed block plus natural grass increased body weight of Etawah grade dairy goats under the condition of the current experiment. Feed block technology is one of the effective alternative feeding methods for Etawah grade dairy goats during forage scarcity periods.

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