Total digestible nutrients intake recommendation for controlling carcass fat on Kejobong goats

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Abstract

This preliminary research was aimed to evaluate the correlation between total digestible nutrients (TDN) intake and carcass fat percentage on Kejobong goats. Sixteen heads of male Kejobong goats (5 – 9 months old) with initial body weight (BW) at 14.03 – 22.32 kg were fattened for 4 months. All goats were fed with ad libitum pelleted total mixed ration containing 63.96 – 69.66% of TDN level which equal to 21.43 – 30.43 g of TDN per 1 kg of body weight. TDN intake were measured by digestion trial, while carcass fat percentage were measured by slaughter method. The data of TDN and carcass fat percentage were correlated using linear regression, then were evaluated by t-test. The results showed that TDN intake per kg body weight was strongly correlated with fat carcass percentage following the equation of $y = 0.1237x + 1.5553$ ($r = 0.60$; $p<0.05$) where y is carcass fat percentage and x is TDN intake (g/kg BW). It was concluded that to increase 5% of carcass fat, 27.85 g TDN per kg BW is needed.

Keywords: total digestible nutrients intake, fat carcass, goats

Introduction

Kejobong goat is one of Indonesia local goat. It is a crossbreed between Ettawa and Kacang goat [1] which has been selected for black color by the farmers in Purbalingga. The goat still traditionally fed with some forages that have low quality of nutrients. This condition makes the productivity of the goat is not optimum. Therefore, it is needed to improve the feed quality.

The total digestible nutrients (TDN) is generally known as energy expression on ruminant. It is one of the major factors affecting goat's production. However, Vasconcelos-Filhoa et al. [2] stated that higher TDN in diets resulted in higher meat lipid on ewes. On the other side, the high meat lipid might contain the high cholesterol, which is not good for the consumer. The minimum red meat fat required to consume is 5% [3]. Based on the explanation above, this preliminary research was aimed to evaluate the correlation between TDN intake and carcass fat percentage on Kejobong goats.

Materials and Methods

Sixteen heads of male Kejobong goats (5 – 9 months old) with initial body weight (BW) at 14.03 – 22.32 kg were fattened for 4 months. All goats were fed with *ad libitum* pelleted total mixed ration containing 63.96 – 69.66% of TDN level which equal to 21.43 – 30.43 g of TDN per 1 kg of body weight. All goats were housed in individual pens and given *ad libitum* water.

The digestion trial method was lasted for 1 week to collect the feces of the goats, then the feces were analyzed for proximate [4] to obtain the total digestible nutrients (TDN) of diet. The TDN intake was calculated per 1 kg of goat's body weight. At the end of experimental period, the goats were fasted for 6 hours before slaughtered following Islamic slaughtering method. The carcass was kept in a cold room at 18°C for 10 hours. The fat were separated from the carcass to know the weight of the fat and then the carcass fat percentage were calculated.

The data of TDN and fat carcass percentage were correlated using linear regression. The strength of the correlation coefficient was evaluated by the value described by Steel and Torrie [5], while the equation of regression was evaluated by t-test.

Results and Discussion

Figure 1 showed that the correlation between TDN intake per kg body weight and carcass fat percentage was significantly strong ($r = 0.60$; $p<0.05$). The higher TDN intake per kg body weight the higher carcass fat percentage of Kejobong goat will produce. Higher energy availability on the diet increased fat deposition of the goat [6,7].

The TDN intake per kg body weight can be predicted by following the equation of $y = 0.1237x + 1.5553$ where y is carcass fat percentage and x is TDN intake (g/kg BW). Based on the meat fat recommended to consume by Hopkins et al. [3], the TDN intake obtained was 27.85 g/kg body weight.

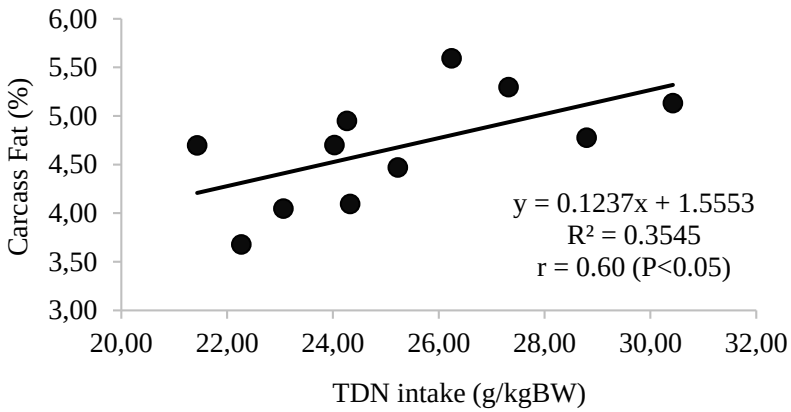

Figure 1. The Correlation Between TDN Intake and Carcass Fat Percentage on Kejobong Goats

Conclusion

It was concluded that to increase 5% of carcass fat, 27.85 g TDN per kg BW is needed.

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