

Effect of dietary addition of copra meal on growth performance and rumen digestion of Alpine goats ⁽¹⁾

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Abstract

Copra meal is one of the rich by-product for feed ingredients in Southeast Asia. To increase the diverse feed resources, imported copra meal was added into goat diets at different levels. The study explores into the growth performance and economic benefit and evaluates rumen digestion. The study aims to recommend the proper utilization of copra meal in diets for growing Alpine goats. A total of 20 head of castrated Alpine goats with averaged body weight of 43.5 kg were randomly assigned into four treatments and group-fed for 56 days. Four iso-nitrogen and energy diets were formulated according to NRC (2007) recommendation to include copra meal at 0, 10, 20, or 30% (dry matter basis). Diets were constituted by corn silage, pangolagrass hay, wet brewer's grains and grain mixture. Copra meal substituted partially the pangolagrass hay, corn and soybean meal. Results from growing trial indicated castrated goats needed two to three weeks to adapt diets containing 20 – 30% copra meal. Four goat groups fed diets with 0 – 30% copra meal had daily dry matter intake per head of 1.32, 1.41, 1.25, and 1.21 kg, daily body weight gain of 137, 177, 148, and 156 g, and feed conversion ratio (DMI/ADG) of 9.6, 8.0, 8.4, and 7.8, respectively. The addition of copra meal showed strong tendency in improving the goat's daily gain by 17% and efficiency by 16%. Ruminant digestion trial was conducted by four rumen-cannulated Alpine dry goats in a 4 × 4 Latin square design with 14 days a period. At the last 48 h of each period, rumen content were sampled every 1.5 to 3 hours. Dry goats consumed diets containing copra meal at 0, 8, 16, or 24% sequentially. Results from rumen digestion showed diets with 8 – 24% copra meal would not affect any rumen digestion parameter. Diurnal and weighed pH, NH₃-N and total volatile fatty acids of rumen content of four groups were averaged 6.09, 15.2 mg/dL and 112 mM, respectively. In summary, copra meal could become a good alternative feed source for dairy goats to produce meat. It will not affect the rumen digestion but requires adaptation when formulated at medium to high level in diets. Under our feeding condition, copra meal could be added into diet 10 – 30% for castrated growing Alpine goats. The body weight gain, feed conversion efficiency, and economic benefits all achieve numerically better performance.

Key words: Copra meal, Alpine goat, Growth, Rumen digestion.

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