

The effect of using corn silage in diets on Taiwan black goat growth performance, feeding cost and greenhouse gas emission ⁽¹⁾

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Abstract

The purpose of this study was to investigate the effect of using corn silage replace Bermuda hay in diets on growth performance and feeding cost in Taiwan black goat, and then use 24-h butterfly needle tube fermentation system to establish the corn silage and Bermuda hay in vitro greenhouse gas emission. Twelve 6 month old Taiwan black goats (18.8 ± 1.8 kg) were randomly assigned into control and corn silage group, with 3 replicates within each treatment. Feeding trial was carried out for 63 days. Feed and water were provided ad libitum. In control group, the concentrate:roughage ration in diet was 7:3, and roughage was Bermuda hay. Corn silage replaced 50% Bermuda hay (dry matter) in diet in corn silage group. The CP level in diet was 14.7-14.9%. Corn silage and Bermuda hay were determined in vivo greenhouse gas emission. The result showed there was no significant difference on growth performance between treatments. The weight gain (g/goat/day) and feed conversion ratio (feed intake/ weight gain) in control and corn silage group were 96 ± 14 , 7.99 ± 0.17 and 92 ± 16 , 8.25 ± 0.27 , respectively. The feeding cost in corn silage group was higher than control group for 6.5%. The methane and carbon dioxide emission in corn silage were higher than Bermuda hay for 51.9 and 17.6%, respectively. In conclusion, corn silage replaced 50% Bermuda hay in diets had no negative effect on growth performance, but increased feeding cost and greenhouse gas emission.

Key words: Corn silage, Feeding cost, Greenhouse gas, Growth performance, Taiwan black goat.

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