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Effect of Supplementation of Grazing Bali Cows During Pre and Postcalving Period on Intake, Digestibility, and Rumen Environment

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Abstract

Ten pregnant Bali cows were used to study effect of supplementation on intake, digestibility, and rumen environment. Approximately 90 d before the expected date of calving, cows were randomly allocated to one of two feeding groups. The 5 cows of Group A were grazed on native pasture, while the remaining cows of Group B grazed with the others but received 1.50 kg concentrate (coconut cake + fish meal + rice bran) with gross energy of native grass = 13.61 kg MJ^{-1} and concentrate = 16.68 kg MJ^{-1}. Voluntary intake of basal diet and supplemented feeds by both groups was measured over successive 14-day periods including 7 days of preeliminary treatment at 1 month after calving, while apparent digestibility was determined at 4–6 weeks after calving, and ruminal fluid was collected on the final day of the trial. Data was analysed using student-t test procedure. Forage intake particularly total dry matter (DM) intake was markedly increased ($P < 0.01$) when cows grazed on natural pasture were supplemented with concentrate (7.6 vs 6.0 kg). The estimated total energy intake also increased ($P < 0.01$) with supplementation. The intake of all the nutrients i.e. total organic matter (OM), crude protein (CP), ether extract (EE), crude fibre (CF) and nitrogen free extract (NFE) were significantly higher ($P < 0.01$) in the supplemented group than in the non-supplemented group. Digestibility data in the study showed that there were improvements after supplementation i.e. DM was significantly higher (66.7 vs 58.3 %); also digestibility of all nutrients except EE and NFE. Rumen pH, ammonia and VFA levels were affected by concentrate supplementation (pH: 6.4 vs. 6.7; NH_3-N: 137.4 vs. 11.0 mg l^{-1}; VFA: 115.2 vs. 86.2 nM l^{-1}). Molar proportion i.e. acetate, propionate and butyrate including acetate and propionate rati also influenced by supplementation (2.9 vs 3.9).

Keywords: Bali cows, digestibility, intake, native pasture, rumen environment.

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