Book of Abstracts of the 60th Annual Meeting of the European Association for Animal Production

Book of abstracts No. 15 (2009)
Barcelona, Spain
24-27 August 2009

Growth performance and feeding behaviour of cattle supplemented with different levels of babasu palm (*Orbignya phalerata*) silage

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Babasu is a palm tree very common in northern Brazil. An experiment was conducted to evaluate the impact of replacing corn silage by babasu silage (BS) in confined cattle. Castrated Nelore males (n=25) were used, with initial live weight of 256±2.0 kg. Animals were given commercial concentrate (1% of live weight/d), and assigned to five treatments, where corn silage was either provided ad libitum (treatment B0), or replaced at 25, 50, 75 and 100% by BS (treatments B25, B50, B75 and B100, respectively). After an adaptation period of 14 d, cattle were kept in individual pens, where feed consumption was measured, and time spent ingesting feed, ruminating, resting and ingesting water was assessed through visual observation for periods of 12 h, with data collected at intervals of 15 minutes. Feed consumption declined linearly as the proportion of BS in the diet increased, with a reduction of about 3.2 to 5.3 kg in the ingestion of feed/d per 25% increase in BS, such that the mean feed intake/d was 23.3 kg in B0 and 7.6 kg in B100. Average daily gain was similar in B0 and B25 (about 1.1 kg) but dropped afterwards as BS increased in the diet, to reach a mean value of 0.2 kg in B100. Animals in B100 had higher resting time (6.68 h) than the other treatments (ranging between 5.09 and 5.70 h), but lower rumination time (2.54 vs. 3.28 to 3.65 h). Time spent ingesting feed was higher in B0 and B100 (2.56 and 2.60 h, respectively) than in the other treatments (3.03 to 3.15 h). No differences were observed between treatments in time spent drinking water. Overall, the inclusion of BS as a substitute of corn silage at a level above 25% of the roughage intake caused a decline in feed intake and growth rate and changed the feeding behaviour of cattle, with an increase in resting time and a reduction in time spent in rumination.

The effects of supplemented diet with fish oil and canola oil during transition period to early lactation on milk yield, dry matter intake, and metabolic responses of early lactating dairy cows

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The study was designed to test the effect of including fish oil and canola oil from transition period to early lactation on milk yield and metabolic responses in Holstein dairy cows. Cows were randomly assigned in treatments: 1) 0% oil (control, n=9) and 2) 2% oil (supplemented, 1% fish oil-1% canola oil, n=9) from -2 to 7 weeks relative to calving. Cows were blocked by parity, previous 305-2x milk production and expected calving time. Dry matter intake (DMI) was recorded daily and feed sample was collected weekly. Cows were milked 3 times per day and daily yields were recorded. Using vacutainer tubes, blood samples were collected weekly before the morning feeding, kept on ice and centrifuged within 30 min at 3000 x g for 20 min. Aliquots of serum were stored at –20 °C until analysis for glucose, triglyceride, cholesterol, and serum urea nitrogen (SUN). The data repeated in time were analyzed by using a mixed model (PROC MIXED, SAS Inst. Inc., Cary, NC) for a completely randomized design with repeated measures. Inclusion of fish oil and canola oil in diet increase milk yield significantly (P=0.042). Dry matter Intake (P=0.72; 21.16 and 20.19±0.50), blood glucose (P=0.92; 57.79±1.46 and 57.61±1.39 mg/dl, respectively), cholesterol (P=0.37; 113.86±3.63 and 118.28±3.42 mg/dl, respectively), SUN (P=0.45; 18.21±0.45 and 18.68±0.43 mg/dl, respectively), and triglyceride (P=0.45; 23.61±1.22 and 24.86±1.09 mg/dl, respectively) were similar between control and supplemented diets in seven weeks after calving. The results show that including fish oil and canola oil had no apparent effects on metabolic responses, but milk yield was significantly increase in supplemented diet.