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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

FEED EFFICIENCY AND BLOOD PARAMETERS IN NELLORE BEEF COWS

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Studies have shown that red blood cells (RBC), hemoglobin (HEMO) and hematocrit (HEMA) concentration may be useful traits to identify efficient phenotypes in feed use, based on the fact that oxygen used by homoeothermic animals is transported to the tissues by the blood red portion. The purpose of this study was to investigate the relationships between feed efficiency traits and blood parameters in Nellore beef cows. Fifty-eight Nellore cows (27 with calves and 31 without calves), having 491 ± 37.6 kg and 1,157 ± 20.1 days of initial body weight and age, respectively, were fed over a 73 days feeding period, with individual feed intake measurement, to evaluate differences in dry matter intake (DMI), residual feed intake (RFI) and RBC, HEMO and HEMA concentrations. RFI was calculated by regression of DMI in relation to average daily gain and mid-test metabolic body weight. Blood samples were obtained on day 0 and 73 and were analyzed for RBC, HEMO and HEMA. On the basis of RFI values, cows were placed into a negative (NEG; RFI<0) or positive (POS; RFI>0) RFI group. Data were analyzed using the MIXED procedure of SAS, including as fixed effects RFI group and presence of calf, and as random effect blood collection day. Means were compared by t test at 5% of probability. RFI mean detected for NEG RFI group was -0.726 ± 0.091 kg d^{-1} and for POS RFI group was 0.947 ± 0.104 kg d^{-1}. DMI was 18% (P<0.001) greater for POS (11.6 ± 0.170 kg d^{-1}) compared to NEG (9.82 ± 0.149 kg d^{-1}) RFI group. No significant differences were detected between NEG and POS RFI group for RBC (8,985 ± 97.4 vs 8,930 ± 112 mL; P = 0.7134), HEMO (12.16 ± 0.117 vs 12.23 ± 0.135 g dL^{-1}; P = 0.6870), and HEMA (39.0 ± 0.387 vs 39.4 ± 0.446 %; P = 0.4750). Previous studies reported lower HEMO and HEMA concentrations for NEG RFI group, related to the oxygen transport and blood flow, which may explain differences in efficiency. However no effects of RFI group were observed for the blood parameters in the present study. More studies are needed to determine if RBC, HEMO and HEMA concentrations may be useful traits to identify efficient animals for Nellore cattle breeding programs.

Keywords: beef cattle, metabolism, residual feed intake.

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