ASSOCIATION BETWEEN DAM FEED EFFICIENCY AND CALF GROWTH

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The objective of the present study was to evaluate the association between residual feed intake of cows and growth of calves in Nellore cattle. Fifty-one cow-calf pairs were assessed in feed efficiency test using GrowSafe Systems Ltd, in two consecutive years. The calves were progeny of only one sire. Average body weight and age of cows at the start of the test was 484 ± 40.9 kg and 1120 ± 37.3 days. Efficiency test of the cows started at 22 ± 5 days postpartum, and was carried out for 81 days. The cow-calf pairs remained together at the facility up to 176 ± 13 days postpartum. The roughage:concentrate ratio of the diet was 90:10, with 72.88% of NDT and 4.22 Mcal kg^{-1} of metabolizable energy. The dry matter intake of cows (DMI = 12.42 ± 1.48 kg DM day^{-1}) was obtained as the mean of the valid days. The average daily gain of cows (ADG) and calves (ADGc) was obtained by linear regression of four and eight body weight records, respectively, without previous fasting. Cow metabolic weight ($BW^{0.75}$) was obtained as intercept α + (ADG x 0.5 x days in the test)$^{0.75}$. The residual feed intake of the cows (RFI) was obtained as the residual of the linear regression of DMI on ADG, $BW^{0.75}$, energy corrected milk production and subcutaneous fat thickness, also adjusting for year effect. The cows were classified as negative-RFI (RFI<0, n = 27, DMI and RFI means: 11.73 ± 0.25 and -0.688 ± 0.119 kg DM day^{-1}) or positive-RFI (RFI>0, n = 24, DMI and RFI means: 13.19 ± 0.26 and 0.771 ± 0.126 kg DM day^{-1}). Negative-RFI cows ate 12% kg DM less than positive-RFI cows. Calf birth weight (CW_{birth}), calf weight at 176 days of age (CW_{176}), ADGc, cow production efficiency [(cow weight/CW_{176})*100], and cow biological efficiency [CW_{176}/(cow weight$^{0.75}$+(CW_{176}–CW_{birth}/176)*(CW_{176}/2) +CW_{birth})$^{0.75}$)] were compared between negative-RFI and positive-RFI cow classes. The model included the effects of RFI and year classes, and calf age effects. The average of CW_{birth}, CW_{176}, ADGc, cow production efficiency and cow biological efficiency were 34.8 ± 4.7 kg, 207 ± 31 kg, 1.02 ± 0.22 kg day^{-1}, 34.48 ± 4.40%, and 1.11 ± 0.14, respectively. The RFI class did not influence the traits studied. In conclusion, more efficient cows (negative-RFI) consumed less dry matter intake than less efficient cows (positive-RFI), with similar maternal performance.

Keywords: average daily gain, lactating cows, residual feed intake