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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

DETERMINATION OF RESIDUAL FEED INTAKE FOR LACTATING BEEF COWS

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The objective of the present study was to determine the residual feed intake for lactating beef cows. Primiparous Nellore cows (484 ± 40.9 kg initial body weight; 1120 ± 37.3 days of age) were evaluated in two consecutive years (27 animals in 2017, and 26 in 2018) through a feed efficiency test using GrowSafe Systems Ltd. The test began at 22 ± 5 days after calving, and was carried out for 81 days. The diet was composed of 90:10 of roughage:concentrate ratio, 72.88% of NDT, and 4.22 Mcal kg^{-1} of metabolizable energy. Dry matter intake (DMI) was obtained as the average of the valid days. Average daily gain (ADG) was obtained as a linear regression of four body weight records without previous fasting, and metabolic weight ($BW^{0.75}$) was obtained as α + intercept (ADG x 0.5 x days in the test)$^{0.75}$. Cows received 20 IU of oxytocin intravenously and were mechanically milked at 63 ± 5 and 84 ± 5 days postpartum. Milk production in 24 hours was corrected for energy (ECMP) using the percentage of milk fat and protein (5.59 ± 1.38% and 3.95 ± 0.31%). Subcutaneous fat thickness was evaluated by ultrasound at 22 ± 5 and 82 ± 5 days postpartum, at five anatomical points, obtaining the average body fat thickness (AFT). The DMI, ADG, $BW^{0.75}$, ECMP and AFT were 12.42 ± 1.48 kg day^{-1}, 0.624 ± 0.321 kg day^{-1}, 107.43 ± 6.12 kg, 10.79 ± 2.36 L, and 6.87 ± 1.87 mm, respectively. The DMI prediction equation (DMIp) was obtained in PROC GLM, adjusting a multiple regression model of DMI on contemporary group class (GC), ADG, $BW^{0.75}$, ECMP and AFT. The model explained 53% of DMI variation of the cows, being 27% for $BW^{0.75}$, 17% for ADG, 8% for GC and 1% for AFT. RFI was obtained as the difference of DMI and DMIp. The average of RFI was 0 ± 0.959 kg day^{-1} (ranging from -1.997 to 3.444 kg day^{-1}). Cows were classified in negative-RFI (RFI<0) or positive-RFI (RFI>0), and the average of RFI was -0.688 ± 0.119 and 0.771 ± 0.126 kg day^{-1}, respectively. Significant differences were observed in DMI (11.7 kg day^{-1} versus 13.1 kg day^{-1}) and DMI expressed in percentage of body weight (2.41% versus 2.70%). Negative-RFI cows ate 12% DM day^{-1} less than positive-RFI cows. In conclusion, $BW^{0.75}$ and ADG are the main factors that influence the dry matter intake of lactating Nellore cows.

Keywords: dry matter intake, fat thickness, feed efficiency milk production

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