

Relationships between residual intake and gain, performance, feeding behavior and body measures in Brahman young bulls

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The aim of this study was to evaluate the relationships between residual intake and gain (RIG), performance, feeding behavior (FB) and body measures (BM) in Brahman cattle. Twenty-four Brahman young bulls with 19 months of age and 370 ± 34 kg of initial body weight were subjected to a 14-day adaptation period and had the dry matter intake (DMI) and average daily gain (ADG) measured in individual pens during the following 54-day period. Cattle received a total mixed ration containing 73.5% of Total Digestible Nutrients and 14.5% of Crude Protein and they were weighed each 14 days. The FB was evaluated in 10th, 25th and 40th experimental days and the animals were observed from 6h00 to 22h00, with an interval of five minutes between observations to obtain total times in idle, feeding and rumination (minutes), number of visits to the trough and calculated the feeding rates per visit and hour. Body length, width of back and rump, height of forelimbs and hindlimbs and depth of ribs were measured on final weighing with a hipometer. The cattle were divided into three groups: high-RIG (high efficiency, RIG > 0.5 standard deviation (SD), n = 9), medium-RIG (RIG between ± 0.5 SD; n = 8) and low-RIG (low efficiency, RIG < -0.5 SD; n=7). The data were analyzed by ANOVA and means compared by Tukey test 5%. High and medium RIG groups showed lower DMI (11.0 and 10.2 kg day⁻¹) than low RIG group (12.2 kg day⁻¹; P < 0.05). High-RIG animals showed higher ADG (2.43 kg day⁻¹; P < 0.05) than medium and low-RIG animals (2.04 and 2.12 kg day⁻¹). The feeding behavior traits and body measures were similar across RIG classes (P > 0.05). RIG selects animals with lower intake and higher weight gain and without affecting feeding behavior in feedlot and body measures of Brahman cattle.

Key words: *Bos indicus*, daily weight gain, feed efficiency, intake, phenotype