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RUMINANT PRODUCTION

DRY MATTER INTAKE OF *NELLORE* STEERS IN DIFFERENT PASTURE PRODUCTION SYSTEMS COMPARED TO *CAJANUS CAJAN* LEGUME-GRASS MIXED PASTURE

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Abstract

Brazil has one of the largest pasture areas for livestock on the planet, and estimates of dry matter intake (DMI) are necessary for adequate nutritional plans to improve animal performance. This study evaluated the dry matter intake (DMI) of *Nellore* cattle in different production systems, including a *Cajanus cajan* legume-grass mixed pasture. The experiment was carried out at the experimental farm of Embrapa Southeast Livestock, São Carlos, SP, Brazil, in two seasons of 2021: rainy (January) and dry (July). Eighteen *Nellore* steers (approximately 445 ± 44 kg and 15 ± 16 months old) were randomly distributed in three treatments with three replications (1.5 ha each): 1) degraded pasture of *Urochloa decumbens* cv. Basilisk (DEG); 2) mixture of grasses and legumes, *U. decumbens* Stapf cv. Basilisk, *U. brizantha* Stapf cv. Marandu and *Cajanus cajan* cv. BRS Mandarin (MIX); and 3) pasture with a mixture of *U. decumbens* cv. Basilisk and *U. brizantha* cv. Marandu with liming, P, K, S, micronutrient fertilization of 200 kg N-urea ha^{-1} $year^{-1}$; and three applications of 66.7 kg N ha^{-1} every 60 days in the rainy season (REC). All pastures were grazed by *Nellore* cattle and submitted to stocking rate adjustments using the "put and take" technique. The animals received 15 g of the titanium dioxide (TiO_2) orally for nine consecutive days. Feces were collected at 6:00 a.m. by spontaneous defecation during four days after the beginning of TiO_2 administration until the tenth day. Daily the samples were frozen, and at the end of the experimental period were dried in a forced-air oven (65 ^oC - 72 h), ground to 1 mm in a Wiley mill and analyzed by ICP-OES (Thermo iCAP 6000 series - Dual View Thermo Fisher Scientific, Waltham, Massachusetts, USA). The statistical model considered treatment, season and treatment x season interaction as fixed effects. Data were submitted to analysis of variance (PROC MIXED) and means were compared by the Fisher test at 5%. Significance (P = 0.0168) was observed for treatment x season interaction. The DMI (kg of DM day^{-1}) in the rainy season presented values of 11.8, 10.0 and 13.8, and in the dry season 4.9, 7.8 and 4.7 for DEG, MIX and REC, respectively. In the dry season, the MIX treatment differed significantly from the others. In the rainy season, the MIX was different from the REC, while the DEG treatment showed no difference in relation to REC and MIX. In the dry season, *Cajanus cajan* consumption was higher than the other treatments. This behavior can be explained by the greater availability of forage mass and the inferior quality of the grass and by the grazing behavior of the animals, which consumed more legume as the dry season extended.

Keywords

Brachiaria spp., consortium, DMI, grazing, pigeon pea