Forage accumulation and beef cattle performance in four Brazilian grazing systems

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The aim of this study was to evaluate the influence of pasture management and season on forage accumulation (dry matter; DM) and animal performance during one year. Four livestock grazing systems were evaluated: Intensive irrigated with high stocking rate (IHS; 5.9 AU/ha; *Panicum maximum*), and intensive dryland with high stocking (DHS; 4.9 AU/ha; *Panicum maximum*), dryland with moderate stocking rate (DMS; 3,4 AU/ha; *Brachiaria brizantha*) and degraded pasture (DP; 1,1 AU/ha; *Brachiaria decumbens*), at an experimental station of the Brazilian Agricultural Research Corporation (EMBRAPA), located in São Carlos, state of São Paulo, Southeast of Brazil. Each paddock was grazed by three Nellore (*Bos indicus*) steers as testers and regulating animals that were used to adjust the sward heights. The grass was sampled each 36 days to estimate forage daily accumulation rate (FAR), and animals were weighed at the same interval of 36 days. The average daily gain (ADG; kg/ha.d) was calculated to evaluate animal performance. Data were analyzed using PROC GLM of SAS® and results are presented as least square means ± SE. FAR (kgDM/ha.d) was influenced by treatments (IHS: 69.16^{a}; DHS: 39.58^{b}; DMS: 21.07^{c}; DP: 13.80 ± 3.16^{c}; $P < 0.0001$) and season (winter: 26.23; autumn: 33.58; spring: 30.17; summer: 53.63 ± 3.16; $P<0.0001$). ADG was higher ($P<0.0001$) for steers grazing IHS than those that grazed the DHS, DMS and DP area (3.83; 2.42; 1.81 *vs* 0.83 ± 0.2, respectively). As expected the ADG (kg/ha.d) was lower ($P = 0.0006$) in winter than autumn, summer and spring (1.45; 2.21; 2.75 *vs* 2.48 ± 0.2) and there was a positive correlation (0.82; $P<.001$) between FAR and ADG. Probably, differences on forage quality provide higher ADG in DMS compared with DP areas as observed above and higher forage accumulation rates determine higher daily gains and these characteristics are dependent of season.

Keywords: forage, animal, performance, livestock

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