



## Stocking rates in beef cattle production systems compared to the *Cajanus cajan* legume-grass mixed pasture during *Nellore* steers backgrounding

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Pastures are the basis of beef cattle production systems in Brazil, and pasture management is essential to improving stocking rates and optimizing animal production. This study evaluated intensification effects on stocking rates in different animal production systems, including a *Cajanus cajan* legume-grass mixed pasture. The experiment was carried out from June 2020 to June 2021 at Embrapa Southeast Livestock, São Carlos, SP. Twenty-seven *Nellore* steers (280 ± 10 kg of live weight; 15 to 16 months old) were randomly distributed into three treatments, with three area replicates: 1) Pasture fertilized with 200 kg N-urea ha<sup>-1</sup> year<sup>-1</sup> in the rainy season, containing a mixture of *Urochloa* (syn. *Brachiaria*) *decumbens* Stapf cv. Basilisk and *Urochloa* (syn. *Brachiaria*) *brizantha* (Hochst ex A. Rich) Stapf cv. Marandu (REC); 2) Pasture with a mixture of *U. decumbens* Stapf cv. Basilisk, *U. brizantha* Stapf cv. Marandu and *Cajanus cajan* cv. BRS Mandarin (MIX), and 3) Degraded pasture of *U. decumbens* Stapf cv. Basilisk (DEG). Pastures (1.5 ha each) were continuously grazed and the stocking rate was adjusted using the "put and take" technique. Animals were weighed at the beginning of the experimental period and regular periods of approximately 28 days. Supplementation with a mineral supplement was performed throughout the year in all treatments. During the dry season, DEG and REC treatments were supplemented with a protein-energy-mineral mixture. Data were subjected to analysis of variance using SAS PROC MIXED and comparison of means by Fisher's test (5%). Interaction was observed between treatments and seasons (P ≤ 0.0001). In the rainy season the average stocking rate was higher in REC and lower in MIX and DEG (3.69<sup>A</sup>, 1.96<sup>B</sup> and 1.63<sup>B</sup> UA ha<sup>-1</sup>, respectively). In the dry season the average was higher in MIX, intermediary in REC and lower in DEG (3.31<sup>A</sup>, 2.31<sup>B</sup>, and 1.43<sup>C</sup> UA ha<sup>-1</sup>, respectively). During the dry season, when the pigeon pea was mature, its grazing allowed higher stocking rate in MIX, compared with the other treatments.

**Keywords:** backgrounding, *Cajanus cajan*, legume-grass, steers, stocking rate.

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