



## Stocking method and *post-grazing sward height* of Mombaça and Tanzânia cultivars: a meta-analysis

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Pasture management is extremely important to the sustainable intensification of beef cattle systems. Therefore, the present study analyzed the stocking method and the adequate height of post-grazing of cultivars of the species *Panicum* (*syn. Megathyrus*) *maximum* to optimize the pasture management for beef cattle production. It was used the systematic review and meta-analysis method, selecting experimental studies available in scientific article format in the electronic databases: Google Scholar, ISI Web of Science, and PubMed. The investigation period corresponded from the beginning of the registration of articles on these platforms until July 27<sup>th</sup>, 2021. The search strategy employed in the platforms referred to the PICO methodology: population (P), intervention (I), comparison (C), and the outcome (O): ((“Bovine” OR “Beef cattle” OR “cow” OR “Steer” OR “Heifer”) AND (“Pasture management” OR “Grazing management” OR “Sward height” OR “Pasture height” OR “Panicum maximum” OR “Mombaça” OR “Tanzania” OR “Tanzânia” OR “Crude protein ” OR “intake” OR “Forage mass” OR “Leaf blade”) AND (“Animal performance” OR “Stocking rate” OR “Weight gain” OR “Average daily gain” OR “Weight gain per hectare”)). Through these steps, 4691 documents were identified, of which 13 were used for data extraction and, consequently, submitted to meta-analysis using the SAS® MIXED procedure. The results support that Tanzânia presented  $591.10 \pm 46.25$  g kg<sup>-1</sup> DM of leaf biomass and  $3.61 \pm 0.33$  of leaf/stem ratio when submitted to the intermittent stocking method, which shows superiority over the continuous stocking method when it presented values of  $291.43 \pm 46.25$  g kg<sup>-1</sup> DM ( $P = 0.0380$ ) and  $1.33 \pm 0.33$  ( $P = 0.0311$ ) for the respective variables. However, comparisons of stocking methods for the Mombaça cultivar were not possible due to the low number of scientific articles on the continuous stocking system. However, it was observed that the results were similar for leaf participation and leaf/stem ratio when Mombaça and Tanzânia were subjected to the intermittent stocking method. In terms of post-grazing height of grasses analyzed in the present study, it was observed that a height  $\geq 40$  cm increased the average daily gain ( $0.81$  kg day<sup>-1</sup>) when compared to management at heights lower than 35 cm ( $0.63$  kg da y<sup>-1</sup>) ( $P = 0.0172$ ). Therefore, it is emphasized that the management of stocking and the residual height of pastures are indispensable factors in increasing beef cattle productivity. For this reason, the intermittent stocking system for the cultivar Tanzânia is promising, and the pasture management at height  $\geq 40$  cm for both analyzed cultivars. Hence, this research can help rural managers make pasture-based livestock production decisions.

**Keywords:** animal performance, beef cattle ranching, pasture management, stocking rate, tropical grassland.