



***In vitro* dry matter digestibility of forages from extensively, intensively managed pastures and silvopastoral systems**

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This study evaluated the effects of intensification and integration in animal production systems on the forages *in vitro* dry matter digestibility (IVDMD), from September 2019 to September 2020 at Embrapa Southeast Livestock, São Carlos, SP. Treatments in a split-block design, with two replicates, were: 1) extensively managed degraded pasture with a mix of *Urochloa* spp. pasture, with a low stocking rate (DP); 2) intensively managed silvopastoral system with *U. spp.* pasture and Brazilian native trees with a moderate stocking rate (LFS); 3) intensively managed rainfed pasture with a mix of *U. spp.* pasture, with a moderate stocking rate (RMS); 4) intensively managed rainfed *Megathyrus maximus* cv. Tanzânia pasture with a high stocking rate (RHS); and 5) intensively managed and irrigated *M. maximus* cv. Tanzânia pasture with a high stocking rate, overseeded in the "dry" season with *Avena byzantina* and *Lolium multiflorum* (IHS). All pastures were grazed by *Nellore* steers (with approximately 375 ± 30 kg and aged between 22 ± 23 months) and submitted to stocking rate adjustments using the "put and take" technique. Grazing was continuous in DP and rotational grazing in LFS, RMS, RHS, and IHS with grazing cycles of 36 days. The period of occupation was 3 days for IHS and RHS and 6 days for RMS and LFS. All pastures, except DP, received liming and corrective fertilization with P, K, S, and micronutrients. Pastures in LFS and RMS received 200 kg N ha<sup>-1</sup> year<sup>-1</sup>; while pastures in RHS and IHS were fertilized, respectively, with 400 and 600 kg N ha<sup>-1</sup> year<sup>-1</sup>. Forage subsamples of all treatments were collected by hand-plucking for three consecutive days in each middle season of the year, mimicking the grazing behavior of the animals. Samples were oven-dried (65°C - 72 h), grounded to 1 mm in a "Willey" mill, and subsequently analyzed for IVDMD by NIRS. The statistical model considered systems, seasons, and the system\*season interaction as independent effects (n = 40), and means of the variables were submitted to analysis of variance and comparison by Fisher test at 5%, using the PROC MIXED of SAS. The highest IVDMD value during the spring was found in LFS (81.1%), followed by RMS and DP (72.3% and 67.6%, respectively), while the lowest values were found in IHS and RHS (61.0% and 59.6%, respectively). In the summer, LFS, RMS, and DP presented the highest values (79.7%, 78.6%, and 75.1%, respectively) when compared to IHS and RHS (62.2% and 60.8%, respectively). During autumn and winter, with seasonality effects, the highest values were found in RMS, IHS, and RHS (averaging 62.3%, 61.3%, and 57.5%, respectively), while the lowest values in LFS and DP (averaging 53.0% and 48.5%, respectively). These results indicate that intensification and integration usually allow greater IVDMD values in relation to DP, depending on the level of intensification and the season of the year. During periods of higher water deficit, rainfed systems tended to present low IVDMD contents. Due to the trees, LFS showed high IVDMD values in spring and summer.

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