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Morphological composition of *Brachiaria decumbens* in silvopastoral system and monoculture

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The objective of this study was to evaluate the morphological composition of *Brachiaria decumbens* in silvopastoral system (SPS) and monoculture, under grazing of dairy heifers, in two seasons of the year (summer and autumn), for two years. The experiment was carried out at Embrapa Dairy Cattle, in the municipality of Coronel Pacheco/MG. The experimental periods were from December/2011 to June/2012 (184 days) and December/2012 to May/2013 (149 days). The experimental design was a complete randomized block with two treatments and three replications, under an arrangement of split split plots. In the plots were allocated treatments that consisted of the type of the evaluated system (monoculture or silvopastoral). The plots consisted of an area of 1.5 ha/each. In the splitplot were allocated the years (Year 1 - 2011/2012 and Year 2 - 2012/2013), and in split-split plot, the seasons (summer and autumn). The paddocks were managed using the method of continuous stocking. The morphological composition was estimated based on cuts performed on all paddocks with a frequency of 21 days. For this, 10 samples were collected in each experimental unit, with the aid of metallic frame 0.5 x 0.5 m, at the height representing the average of sward. In SPS, three samples were collected under tree canopy to represent the intensive shading condition. The plants were cut at height of 5 cm above the soil, and then taken to the laboratory for weighing and separation. The samples were separated in the green and dead fractions. The leaves and stems were separated from green fraction. The different components were dried in forced drought oven 55°C for 72 hours and weighted. The data were analyzed as repeated measures in time, using PROC MIXED of SAS® and the treatment means were estimated using the "LSMEANS" and the comparison between them, when necessary, carried out through the probability of the difference ("PDIFF") using the "t" "student" test and a probability level of 5%. The dry mass of leaves and stems were influenced ($P < 0.05$) by system type x year x season interaction. The dry matter of leaves varied with seasons in the monoculture during the Year 1, with highest average in the autumn, while in the silvopastoral system, the highest average was observed in summer, during the Year 2. The dry matter of stems varied only in the monoculture, with highest averages for autumn, in the Year 1, and summer in the Year 2. For dry mater of leaves and stems, systems differed ($P<0.05$) in all seasons, except in summer of Year 1. In the autumn of the year 1 and in the summer and autumn of the year 2, the monoculture had larger values (1,305; 1,183 and 1,206 kg ha^{-1} for dry matter of leaves and 1,677; 2,002 and 1,784 kg ha^{-1} for dry matter of stems, respectively) when compared to the SPS (660, 795, 664 kg ha^{-1} for dry matter of leaves and 937; 1,120 and 927 kg ha^{-1} for dry matter of stems, respectively). The dry mass of dead material (DMDM) was influenced ($P < 0.05$) by system type x year interaction. The years did not vary in any of the types of systems. However, the monoculture showed higher DMDM in the first and second years (638 and 735 kg ha^{-1}, respectively), than the SPS (421 and 326 kg ha^{-1}, respectively). The monoculture has greater potential to maintaining higher mass of leaves in pasture than SPS, but their larger mass of stems and dead material suggests a worse structure for animal in grazing regime.

Keywords: signal grass, continuous stocking, dry mass of leaves, dry mass of stem, shading

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