

## Herbage accumulation in *Brachiaria decumbens* in silvopastoral system and monoculture

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The silvopastoral systems (SPS) are multifunctional systems, where there is the possibility of intensifying production by the integrated management of natural resources avoiding their degradation, and recover their productive capacity. Studies on the morphophysiological and nutritional aspects show that the effects of shade on forage vary with the shade tolerance of the species, the level of shading and soil fertility. The objective of this study was to evaluate the herbage accumulation of *Brachiaria decumbens* in 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 split-split plots the seasons (summer and autumn). The paddocks were managed using the method of continuous stocking. The herbage accumulation was evaluated using exclusion cages (0.49 m<sup>2</sup>). The herbage accumulation was measured during periods of 21 days of exclusion, at three points in each paddock. In SPS, one of the three sample units was located under the tree canopy to estimate the influence of tree shading over the herbage accumulation. The choice of the exclusion point was based on the average sward height. On day zero (fixing the cages), for each fixed cage, two similar locations were chosen. In one of them, the cage was fixed and in the another location, forage contained within a metal frame of 0.5 x 0.5 m, was cut and weighed. The samples were dried in a forced air greenhouse at 55°C for 72 hours to determine the dry matter content. After 21 days, the herbage mass accumulated inside the cage was also cut with the aid of a metal frame 0.5 x 0.5 m. The preparation of these samples followed the same procedures used for previous samples. Seven days after this evaluation, the cages were reallocated and a new cycle of 21 days started, followed by another period of seven days without cages, and so on until the end of the period. The herbage accumulation was estimated by agronomic difference method, according to the equation:  $AF = MF_f - MF_i$ , where: AF = herbage accumulation; MF<sub>f</sub> = herbage mass, in the cage, on the last day of exclusion (day 21); MF<sub>i</sub> = herbage mass in placing of the cages (day 1). The data were analyzed as repeated measures in time, using PROC MIXED of SAS<sup>®</sup> 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%. No effect ( $P > 0.05$ ) of type of system, year and season was verified. The average herbage accumulation was 1.405 kg ha<sup>-1</sup>. The results indicates that moderate shading did not affect the herbage accumulation, which may be attributed to tolerance of *B. decumbens* to shading conditions in SPS.

**Keywords:** signal grass, continuous stocking, production system, shading