

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

BASAL RESPIRATION AND ORGANIC MATTERS LIGHT FRACTION OF SOILS IN SILVIPASTORIS SYSTEMS OF BRACHIARIA DECUMBENS STAPF WITH ARBORIAL LEGUMES

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Silvopastoral systems are considered alternatives to reduce the degradation or recovery of degraded pastures by contributing to improve soil quality, especially when using tree legumes, and are able to promote a greater diversity of end products when compared to monoculture systems. In order to evaluate the soil quality, a rainfall test was carried out to assess basal respiration (BR) through CO₂ emission, and the organic matter light fraction (LOM) of the soil in pasture areas of *Brachiaria decumbens* Stapf, consorted with tree legumes in double rows, in Zona da Mata de Pernambuco. The experimental plots consisted of *B. decumbens* + *Mimosa caesalpinifolia* Benth, *B. decumbens* + *Gliricidia sepium* (Jacq.) Steud and *B. decumbens* in monoculture. The experimental design was randomized in blocks, with three replications in plots of 1 ha each, maintained with continuous stocking and variable stocking rate, with forage supply around 3 kg DM of green forage per kg live weight. The animals consisted of 5/8 Holstein x Zebu calves, with an average body weight of 200 kg. In the consorted plots, soil samples were obtained at three sampling sites, below the canopy (0 m) and at two distances between the double rows of legumes (4 and 8 m); in the case of exclusive culture, two sites, center and edges of paddocks. In all cases, samples were taken from 0-20 and 20-40 cm deep. The data were analyzed using the Proc Mixed of SAS, being the averages compared by the Tukey test, at 5 % probability. BR values (P<0.01), via CO₂ emission, were observed in the brachiaria (monoculture) in relation to the consortia with gliricidia and sabiá (0.09, 0.21 and 0.20 mg CO₂ kg⁻¹ h⁻¹, respectively). Comparing the consortia, legume x depth interaction was observed (P<0.01), with higher values for gliricidia (0.28 ± 0.02 mg CO₂ kg⁻¹ h⁻¹) in the 20-40 cm layer and, for sabiá (0.24 ± 0.02 mg CO₂ kg⁻¹ h⁻¹) at 0-20 cm. LOM showed triple interaction between consortium, sampling site and soil depth, being higher in sabiá (0 m) and the gliricidia (4 m) in the 0-20 m layer, both with 2.3 g kg⁻¹ of LOM. The silvopastoral system is a management strategy capable of promoting the increase of organic matter in the soil associated to the deposition of residues, potentially favoring soil quality.

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