EFFECT OF SILVOPASTORAL SYSTEMS ON THE THERMAL COMFORT AND ZOOTECHNICAL PERFORMANCE INDEXES OF BUFFALOES CALVES IN THE EASTERN AMAZON

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Silvopastoral systems are environmental management alternatives which provide ANIMAL WELFARE benefits and increase their performance, mainly in tropical regions, such as the Amazon, where the heat stress is permanent. This research aimed to propose a methodology for the management of buffalo calves in the Eastern Amazon, using silvopastoral systems, able to provide welfare benefits and increase in the growth rate of animals. The experiment was conducted at Embrapa Eastern Amazon, in Belém, PA, under Afi [ER1] climate type, during two phases of the year: dry season - mild rainy phase (Phase 1: April to Sep./2007) and rainy season - intense rainy phase (Phase 2: Oct./2007 to March/2008). Calves were placed into Silvopastoral System 1 (SSP1; n=10), with shading areas on the pastures, or in Silvopastoral System 2 (SSP2; n=9), with some shading areas and a lake for swimming. Physiological variables and morphometric data were taken. Temperature and Humidity Index (THI) and Benezra's Comfort Index (BCI) were calculated for the two seasons of the year in both SSPs, and the data were compared by the F test ($P< 0.05$). THI indicated the“alert level” during both experimental phases (Phase 1: 78.9±3.7 and Phase 2: 77.5±3.5). The respiratory rate was above normal levels, with variation of 32.2±9.2 to 56.5±19.0 mov/min. The rectal temperature (38.3±0.26 to 39.3±0.38 °C) and cardiac frequency (64.6±15.2 to 76.6±13.9 beats/min) were within the normal range for buffaloes. The skin temperature ranged between 23.6±8.3 and 31.7±5.4 °C. The BCI in SSP1 animals ranged from 2.46±0.33 to 3.31±0.62 and in SSP2 animals ranged from 2.42±0.30 to 3.45±0.66 ($P>0.05$). Weight gain of calves in both silvopastoral systems was considered excellent (0.917±0.4 to 1.052±0.5 kg/day), as well as growth rate.