

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

USE OF THE THERMOGRAPHIC CAMERA FOR BREEDING THE PRODUCTION OF BODY HEAT OF COWS F1 HxZ

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The body surface temperature is a physiological variable that is analyzed by means of the thermographic images, but what is verified in the scientific works is a variation in the models of equipment used and different distances adopted during the photographic records due to the resolutions of the cameras. The study was aimed at evaluating the different distances of the photographic records adopted in the scientific literature to obtain the body surface temperature of F1 Holstein X Zebu cows, and the effect of the climatic environment on the time of day. A completely randomized design was used in the 3 x 2 factorial scheme, with three distances of photographic records (one, two and three meters) and two schedules (morning and afternoon) with 10 replicates. The variables were submitted to analysis of variance and when the F test was significant, the means of the treatments were compared by the Scott-Knott test ($P < 0.05$). The climate environment was characterized from daily collections of air temperature, relative humidity and wind speed, to calculate the Globe and Humidity Temperature Index (BGT) and Radiant Thermal Load (RTL). The body surface temperature was measured at eight hours, twelve hours and fifteen hours, through the use of infrared camera model C2 of the brand Flir®. The mean values of air temperature were higher in the afternoon, while the relative humidity was decreasing in the same period ($P < 0.05$). The highest values of BGT (90.3) and RTL (553.8 W m^{-2}) were recorded at twelve hours. Regarding the distances adopted to carry out the photographic records, it was verified that there was no significant difference for body surface temperature values, with the general average being 36.8°C . Significant difference was recorded for the body surface temperature of the animals at the evaluated times, since the highest values were recorded at fifteen hours due to the climatic environment and the accumulation of radiant heat due to the black fur of F1 HxZ animals. It is concluded that it is possible to make photographic records at different distances of the animal without changing the values due to the resolution of the thermographic camera and the values recorded in the afternoon correspond to the accumulation of heat resulting from the black coat that favors surface temperature values higher than in the morning.

Keywords: ambiente, dairy cattle, infrared thermography, thermal comfort

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