

PHYSIOLOGICAL PARAMETERS FOR FEMALE SHEEPS FROM DIFFERENT GENETIC GROUPS

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Heat stress has been recognized as an important limiting factor for sheep production in the tropics. Thus, the availability of animals capable of producing satisfactorily in adverse environments is important to facilitate the breeding of these animals in such conditions, biologically and economically. Therefore, knowledge of physiological responses is necessary as a technical basis for introduction of new genetic groups in a region, as well as the orientation of breeding programs. The aim of this research was to evaluate physiological parameters such as respiratory rate (RR), rectal temperature (RT), haircoat temperature (HT) and sweating rate (SR) from Santa Inês (S), Dorper (D), Texel (T), Ile de France (I) and $F_1 \frac{1}{2} D + \frac{1}{2} S$, $\frac{1}{2} T + \frac{1}{2} S$ e $\frac{1}{2} I + \frac{1}{2} S$ ewes breeds. The experiment was conducted at the Embrapa Southeast Livestock Center, located in São Carlos, São Paulo, Brazil (22°01'S and 47°53'W). Measurements were obtained during three hot days, with open sky, in the summer months. Analyses were performed using a statistical model that included the effects of genetic group (GG), handling group (HG), period (morning and afternoon) as repeated measures, GG x period and animals (GG – HG). For all genetic groups, the averages of RT, RR, SR and HT variables increased from the period of morning to the afternoon one, i.e. with the exposure of animals to heat. Genetic Group showed significant effect ($P < 0.01$) upon RT, RR and SR, but not on HT. Animals from I and T breeds had higher RT (39.81 ± 0.08 °C; 39.67 ± 0.07 °C, respectively) and RR (90.70 ± 3.31 mov/min; 98.16 ± 2.70 mov/min, respectively), while S crossbreed showed lower RT (39.14 ± 0.07 °C) and RR (59.66 ± 2.7 mov/min). D animals (RT = 39.36 ± 0.07 °C; RR = 71.01 ± 2.97 mov/min) and $\frac{1}{2} D + \frac{1}{2} S$ crossbred animals (RT = 39.18 ± 0.07 °C; RR = 62.49 ± 2.71 mov/min), $\frac{1}{2} I + \frac{1}{2} S$ (RT = 39.25 ± 0.07 °C; RR = 63.83 ± 2.60 mov/min) and $\frac{1}{2} T + \frac{1}{2} S$ (RT = 39.34 ± 0.07 °C; RR = 67.46 ± 2.70 mov/min) showed intermediate average. Regarding SR, the lowest means were for $\frac{1}{2} D + \frac{1}{2} S$ ($1,117.1 \pm 91.23$ g.h⁻¹.m⁻²) crossbred and S ($1,160.65 \pm 90.97$ g.h⁻¹.m⁻²) purebred animals and higher ones for animals T ($1,492.39 \pm 90.97$ g.h⁻¹.m⁻²) and $\frac{1}{2} T + \frac{1}{2} S$ ($1,484.17 \pm 90.97$ g.h⁻¹.m⁻²). High means of respiratory rate, rectal temperature and sweating rate from T, I and $\frac{1}{2} T + \frac{1}{2} S$ animals demonstrated a lower degree of adaptability of these genotypes.

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