

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## **SEMEN QUALITY OF GIROLANDO BULLS FROM DIFFERENT BREED COMPOSITIONS AND CORRELATIONS WITH INFRARED THERMOGRAPHY**

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The objective of this study was to evaluate the semen quality of crossbred Girolando (Gyr x Holstein) bulls from different breed compositions and correlate these results with infrared thermography. The andrological classification by points was performed considering the scores of motility, vigor and sperm morphology, scrotal circumference and animal age. Infrared thermography was performed in the ocular and scrotal areas. Thermoregulation capacity was performed by differences between air and rectal temperatures, air and maximum temperatures in ocular and scrotal areas, and dorsal and ventral lines of the scrotum. Analysis of data was performed using a linear mixed model (genetic composition as fixed effect and year of evaluation as random effect). The Spearman correlation coefficient was used to associate the thermography and reproductive data. The 3/4 Holstein bulls presented higher ( $P \leq 0.01$ ) Breeding Soundness Evaluation and scrotal circumference. The 5/8 Holstein bulls presented a higher ( $P < 0.001$ ) percentage of major-type and total sperm defects. The 3/4 Holstein bulls presented scrotal temperatures  $0.8^{\circ}\text{C}$  higher ( $P < 0.001$ ) and the 5/8 Holstein bulls presented 9.8% and 10.6% higher differences on "rectal – scrotal area" and "ocular area – scrotal area" temperatures, respectively. Temperatures of the ocular area presented negative correlation ( $P \leq 0.05$ ) with Breeding Soundness Evaluation, motility, vigor, concentration and sperm mass movement and positive correlation ( $P < 0.001$ ) with minor-type and total sperm defects. Ventral line temperatures on scrotum surface presented positive correlations ( $P < 0.0001$ ) with the minor-type and total sperm defects. The 3/4 Holstein Girolando bulls are superior to 5/8 Holstein bulls for semen quality. Under non-stressing climatic conditions, semen quality of Girolando bulls is more influenced by breed composition than by the capacity for scrotal thermoregulation. The correlations between semen quality and infrared thermography of ocular and scrotal areas can aid the identification of bulls for breeding.

**Keywords:** crossbreeding, dairy cattle, reproduction, thermoregulation, tropical livestock

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