

Animal welfare, etológia és tartástechnológia



Animal welfare, ethology and housing systems

Volume 9

Issue 3

Különszám/Special Issue

Gödöllő
2013

APPLICATION OF THERMOGRAPHY IN COWS PRODUCTIVITY EVALUATION: THE CORRELATION BETWEEN THE BODY TEMPERATURE AND MILK YIELD

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The aim of this work was an attempt of using thermography measurements to monitoring cows productivity. The changes in the temperature of the cow's udder were analysed. The temperature measurements as thermograms for the individual cows (HF breed) were taken before and after the milking, in the milking parlor (364 thermograms). Measurements were taken by InfraCAM SD (FLIR system) camera. Thermograms were analysed using the FLIR-QUICK-REPORT program. Thermal analysis results for every individual were compared with the stage of lactation, the number of lactation and the milk yield (productivity). Statistical analysis were done using SIGMASTAT 3.5 (two-way ANOVA, Tukey test).

Results of experiment showed no differences between the temperature (measured for the cows` udder) at the beginning and at the end of milking. Temperature at the beginning was $T = 37,8 \pm 0,59^\circ\text{C}$, and at the end of milking was $T = 37,8 \pm 0,59^\circ\text{C}$ ($P > 0,05$). Temperature did not depend on the cows age (number of lactation), ($P > 0,05$). It was observed correlation between temperature and month of lactation ($P \leq 0,05$). The highest temperature was observed in the second part of the first month of lactation. The high temperature of the cows udder was observed since the second part of the first month till the seventh month of the lactation. Cows productivity for the first month of lactation was between 30 – 45 l milk per day, and in the seventh month it ranged between 15 – 40 l. At the seventh month of lactation the rapid decrease of the temperature was observed. The lower temperature of the udder was typical for the cows between 7th up to 12th month of lactation (or more). It is probably correlated with the natural decrease of cows productivity at that stage of the lactation.

CONCLUSION

The obtained results confirms possible application of thermography as an noninvasive method of assessing the productivity of farm animals.