

# ABSTRACTS BOOK

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### A33

#### TEMPERATURE AND HUMIDITY INDEX (THI) ESTIMATION FOR BEEF CATTLE WITH TEMPERATURE AND HUMIDITY VALUES RECORDED AT 4:00 PM

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This work was due to know the optimal environment (climatic comfort and animal welfare) where the cattle production would be developed to get the optimal livestock productivity. The meteorological data are usually restricted to series that only have maximum and minimum values of both relative humidity and temperature in daily time scale, making impossible the hourly parameters calculation. For this purpose, the bioclimatic indicator, temperature and humidity index (THI), was used to monitor whether environmental conditions generate heat stress in livestock. So, it was obtained the THI using the highest temperature and humidity data of the day (it occurs at 4:00 pm (THI4), to establish if it is representative of a daily average. For calculations, the data were obtained from the meteorological station located in the EEA INTA Pocito San Juan, whose coordinates are 31° 39' 14" S and 68° 35' 15" W and 615 m a. s. l. The data used correspond to the warmest months, December and January of the years 2014 and 2015. THI was calculated according to the equation:  $THI = (1.8 T) + 32 - (0.55 - 0.55 HR/100) * (1.8 T - 26)$ , with T being the temperature of 4:00 pm and HR the relative humidity percentage corresponds to the same time. The hourly THI values were calculated and the daily average obtained (THI24); THI4 was validated by correlation coefficient. The ITH4 obtained were corrected by adding the mean difference between THI4 and THI24. The correlation coefficient obtained between the THI daily calculated with the hourly records, and the corresponding THI4, showed higher than 91% for both months and years analyzed. The adjusting by the algebraic add of the difference THI24-THI4, improved the estimation mainly for December and in less accuracy for January. It is concluded that a good estimation of the THI daily for the months of December and January could be obtained using the temperature and humidity at 4:00 pm.

### A34

#### CIRCADIAN VARIATIONS IN THE EXPRESSION OF ESTROGEN RECEPTOR $\alpha$ IN RETINA OF VISCACHA

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In some species the presence of estrogen receptors  $\alpha$  (ER $\alpha$ ) has been demonstrated in retina. ER $\alpha$  are involved in neuroprotective functions through their ability to regulate apoptosis, autophagy and antioxidant processes. Morphological variations in the retinal layers of viscacha have been demonstrated in response to changes in ambient lighting. The objective of our work was to study the expression of ER $\alpha$  in retina according to the morphological variations described previously. Retinas of adult male viscachas (*Lagostomus maximus maximus*) were obtained at 08:00, 16:00, and 24:00 h (n = 4 for each group). They were processed for light microscopy and histological sections were made for the immunohistochemistry with the primary antibody anti-ER $\alpha$  (MC20): sc-542. The visualization of reaction was performed using an amplified biotin-streptavidin system (DAB chromogen). The immunoreactive (-ir) cells were quantified by image analysis and the number cell was expressed by microscopic field (cell/field). The data was statistically analyzed. In retinas from viscachas sacrificed at 08:00 h, intense nuclear immunostaining was observed in cells of the inner nuclear layer (INL) and in retinal ganglion cells (RGC). At 16:00 h, the ER $\alpha$  were not expressed in the retinal layers. However, in samples obtained at 24:00 h was observed nuclear labeling less intense in the INL and RGC. The morphometrical study revealed that the number ER $\alpha$ -ir cells in the INL was significantly increased at 08:00 h ( $15.52 \pm 2.90$  cell/field) compared to the corresponding values at 24:00 h ( $4.45 \pm 0.92$  cell/field,  $p < 0.05$ ). In addition, the number of RGC that express ER $\alpha$  were higher at 8:00 h ( $0.96 \pm 0.25$  cell/field) compared to those obtained at 24:00 h ( $0.20 \pm 0.05$  cell/field,  $p < 0.05$ ). These results show that the expression of ER $\alpha$  is detected at 24:00 h when the photoreceptor layer (PL) thickness was maximal. The expression of ER $\alpha$  reaches a maximum at 8:00 h when the thickness of the PL began to decrease and they are absent when the thickness of the PL was minimal. This suggests that ER $\alpha$  expressed in INL and RGC might be involved in processes that regulate autophagy and the daily photoreceptor renewal cycle through the specific connections established into the retinal layers. However, future studies will be necessary to elucidate the role of ER $\alpha$  in viscacha retina.