

**Genetics of thermotolerance in Brangus heifers – the role of coat score**

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High production levels in livestock are dependent on a good environment while unfavorable environments could lead to lower productivity by not allowing the true genetic potential of the animal to be expressed. Heat stress is a major cause of economic loss for beef cattle producers in tropical and subtropical environments. To cope with harsh environmental conditions, many producers have introduced *Bos Indicus* breeds into their herds. While this has improved the heat adaptability in the crossbred animals, it also introduced other challenges.

The hair type of an animal is one important factor influencing the ability of cattle to maintain a normal body temperature under extreme environmental conditions. Hair insulates the body by trapping air next to the skin, making heat exchange less efficient. More importantly, long and thick hair traps sweat, not allowing it to evaporate efficiently.

The long-term goal of this study is to develop selection strategies to improve heat tolerance, while improving the production traits we are striving for in the beef cattle industry. Hair coat is one of the factors we are examining. Length and thickness of hair varies considerably not only between breeds but also within breeds. This variation suggests that selection for a coat advantageous for improved thermotolerance in our cattle is possible. Hair coat color, coat scores and daily body temperatures at 5-min intervals over a 5-day period were recorded on approximately 725 Brangus two-year old heifers from the Seminole Tribe of Florida during summer 2016. A repeated measures model was used to investigate the effect of coat score on body temperature. The coat was scored as excessively smooth (score 1, n = 526), fairly smooth (score 2, n = 189) or long coat (score 3, n = 7). The coat score had a significant effect on body temperature, where cows with excessively smooth coat had lower body temperatures throughout the 3 days of continuous body temperature measurements indicating that coat type plays an important role in the control of body temperature.