

# BY THE NUMBERS



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## Warmer temperatures mean hair shedding

*As temperatures rise, both ranchers and cattle begin to shed layers and employ evaporative cooling (sweating) as a means to keep cool. For cattle, when winter hair does not readily shed, it can trap sweat next to the skin, hindering thermoregulation.*

To compensate, cattle expend more energy increasing respiration and perspiration rates. Because of this, both the animal's well-being and productivity can be compromised.

The American Angus Association teamed up with researchers at Mississippi State University, Delta G and South Dakota State University to answer questions surrounding hair coat shedding, its usefulness as a genetic predictor and the influence it has on maternal productivity as expressed by pounds of calf weaned.

### The research

The research project, supported by the Angus Foundation, collected data on 5,294 females over a two-year period. These females, located in 20 different herds across the Southeastern United States, Missouri and Texas, ranged in ages from 2 to 10+ years of age. About half of these females were scored twice, once per year over the two-year project, allowing for a repeatability model to be utilized. Repeatability models allow for multiple measures on the same female to be utilized for increased prediction accuracy.

Both hair coat scores (HCS) and body condition scores (BCS) were collected on each female. Hair coat

scores were taken by two trained technicians and recorded on a 1-to-5 scoring scale. A score of "1" indicated a slick summer coat, while a score of "5" indicated a full winter coat. Scores were taken in the spring once hair shedding had started, but was not fully complete in any given group. In the Southeast the most common time to score was near the end of May.

### The results

Once data were collected, HCS, BCS and weaning weights (on calves) were analyzed together to evaluate the heritability and genetic correlations among traits. A moderate heritability for HCS ( $h^2 = 0.42$ ) was estimated, indicating genetic selection can take place. In addition, a negative genetic correlation between HCS and BCS was estimated, suggesting as HCS increases, or cows tend to have fuller winter coats, BCS decreases, and vice versa.

In addition, genetic correlations between HCS with direct and maternal genetic effects on weaning weight (WW) were estimated. While a low correlation between HCS and direct WW ( $rg = 0.17$ ) was found, a moderately strong, negative relationship between maternal WW, or the additional pounds weaned per

calf due to its maternal environment, and HCS ( $rg = -0.30$ ) was estimated. While more investigation into these relationships is warranted, the study suggests a relationship between HCS in females and performance in their calves is prevalent.

### The future

Further research with increased data collection and continued model building with bigger data sets are needed for a reliable genetic tool to be published. The project provides good evidence that opportunities exist to select Angus cattle for increased environmental adaptability in differing climates with selection for hair coat scores.

The Association is currently in the process of laying the groundwork to publish the HCS guidelines mentioned above for use in nationwide scoring. Members can also expect additional features to be added to AAA Login and AIMS to report HCS to the Association. The additional data points will aid in the development of a hair-shedding selection tool to be made available to assist producers in making selection decisions. For more information, contact the Performance Programs Department. **AJ**