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## 080 Evaluation of Angus Cattle Hair Coat Length and Its Associations with Tolerance to Fescue Toxicosis.

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Fescue toxicosis negatively impacts cattle productivity. Variation in response to endophyte-infected tall fescue within breed indicates differences in genetic tolerance to fescue toxins. The objective of this study was to determine if cattle exhibiting a short hair coat have increased tolerance to physiological symptoms associated with consuming endophyte-infected tall fescue compared to animals with longer hair coat. Purebred Angus cows, 2 to 4 yr old, at 2 locations grazed endophyte-infected tall fescue for 13 wk starting mid-April. Cattle ( $n = 40$ ) were selected based on hair coat score, and designated as either slick (S) or rough (R). Weekly measurements were collected to monitor animal performance while consuming endophyte-infected tall fescue. Blood samples were collected for fescue tolerance genotyping using T-Snip. Genotype scores range from 0 to 5, with 5 being most tolerant, defined by the manufacturer. Data on hair coat score, body condition score (BCS), rectal temperature, and body weight were analyzed as repeated measures with the MIXED procedure of SAS. Frequency of T-Snip genotypes across hair groups was analyzed with a chi-square test in SAS. As expected, hair coat scores (1 to 5 scale) were significantly ( $P < 0.05$ ) lower for cattle with S (1.7) compared to R hair coat (3.2). Additionally, shedding scores were lower ( $P < 0.05$ ) for cattle with S (1.8) compared to R (3.6) hair coats. In 2 yr old cattle at both locations, body weight was greater ( $P < 0.05$ ) in cattle with S hair coat (601.9 and 475.7 kg; location 1 and 2, respectively) compared to cattle with R hair coat (453.9 and 434.4 kg; location 1 and 2, respectively); this difference was not observed in the other age groups. In 2 yr old cattle, BCS were greater ( $P < 0.05$ ) for cattle with S (5.9) compared to R (5.1) hair coats, however this difference was not observed in the other age groups. No difference ( $P > 0.05$ ) was observed in rectal temperature during weekly collection days, however daily fluctuations in body temperature varied among treatment groups ( $P < 0.05$ ). There was a significant ( $P < 0.05$ ) deviation from the expected number of T-Snip genotypes between hair coat groups. The number of animals classified as 1, 2, and 3 for the T-Snip test was 1, 14, and 4, for S and 8, 9, and 3, for R hair coat, respectively. Based on these data, cattle with the ability to shed hair display improved productivity, a better thermoregulatory capacity and potential to be more tolerant to the negative effects associated with fescue toxicosis.

**Keywords:** fescue toxicosis, hair coat length,  
cow productivity

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## 081 Sire Effect on Pregnancy Associated Glycoprotein (PAG) Concentrations in Nelore Beef Cows.

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Understanding the causes of embryonic mortality (EM) is fundamental to developing management strategies that decrease economic loss in cattle. Though late EM (after d 28 of gestation) represents a smaller proportion of reproductive failure compared to early gestation EM (~10% vs. ~35%), economic consequences are reported to be disproportionately greater due to delayed conception date which limits cow productivity. Placental insufficiency is considered to be a major cause of late EM and bovine pregnancy-associated glycoproteins (PAG) have been used as a marker of placental function. Although the functional role of PAG is unclear, it has been shown that many factors affect PAG concentrations including pregnancy stage, breed, parity, sire, and fetal sex. Limited data have been reported on sire effects on PAG concentration, however, based on the influence sire has on placental development, we were interested in this potential relationship. The objectives of this study were to determine how breed and fertility of sire influences PAG concentration at d 30. Postpartum Nelore beef cows ( $n = 1228$ ) were artificially inseminated at a fixed time (d 0) after synchronization of ovulation. A subset of cows ( $n = 492$ ) were inseminated with commercially available Angus or Nelore semen, and another subset ( $n = 736$ ) were inseminated with 6 Angus bulls of unknown fertility. Pregnancy diagnosis by ultrasound was performed and serum samples were collected on Day 30. Serum concentrations of PAG were quantified using an in house PAG ELISA with antibodies raised against PAGs expressed early in gestation. Overall pregnancy rate was 53.75% (range 36.52% to 67.92%). Late EM was 6.21% (range from 1.53% to 11.69%). Serum concentration of PAG were significantly higher in cows gestating a pregnancy sired Angus compared to Nelore bulls (Nelore  $9.67 \pm 0.48$  ng/ml vs. Angus  $11.87 \pm 0.52$  ng/ml;  $P = 0.0023$ ). Late EM occurred in 41 cows that had a viable embryo on Day 30 of gestation but failed to maintain pregnancy until d 100. Three sires in this experiment accounted for more than 70% of the late embryonic mortality and had lower PAG compared to other 3 bulls ( $8.5 \pm 0.35$  ng/ml vs.  $9.48 \pm 0.36$  ng/ml;  $P = 0.0562$ ). These data indicate that pregnancies from bulls with high embryonic loss had lower PAG concentration on d 30, suggesting PAG may serve as a novel marker for bull fertility.

**Keywords:** Embryonic Mortality, Cattle, Bovine  
Pregnancy-Associated Glycoprotein

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