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RELATIONSHIPS BETWEEN TEMPERAMENT AND LIVE ANIMAL BODY COMPOSITION TRAITS IN CROSSBRED STOCKER STEERS

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Background. The economic implications associated with livestock temperament have not been fully determined (Grandin, 1994). Within the cattle industry we have daily interactions with cattle that are influenced by the temperament of the animal. Many concerns can arise, which include animal handler safety, damage to equipment and facilities, injury to the animal, etc. Several studies have reported reduced animal productivity related to temperament (Voisinet et al., 1997).

The objectives of this study were to evaluate effects of breed of sire on exit velocity (EV, m/s), chute temperament score (CS) pen temperament score (PS) and determine relationships between EV, CS and PS with body weight (BW), total gain (GAIN), and live animal body composition traits (ribeye area (REA), intramuscular fat (IMF) gluteus medius depth (GMD), rump fat (RF) and average daily gain (ADG) at 28-d intervals over a 168-d grazing period.

Research Findings. Angus crossbred steers (n=44) were assigned a pen score (scale of 1 to 5, with 1=non-aggressive, not excited by humans or facilities; to 5=very aggressive, excited, runs into fences, "combative"); calves were weighed on a platform scale and assigned a chute score. Exit velocity was measured using a laser-timing device (FarmTek) over approximately 1.83 m from the chute (m/s). Steers were randomly assigned to one of three tall fescue (*Festuca arundinacea* Schreb.) forages [novel endophyte-infected 'Georgia 5' (GA5) and 'Jesup' (JES), and endophyte-free 'Kentucky 31' (KY31) and ryegrass (*Lolium multiflorum* Lam; RG)] with two replications per forage. Least square means were obtained from the PROC MIXED procedure of SAS (SAS Institute, 2001) with main effects of sire breed, rep and forage type. Breed of sire (Angus or Brangus) was not a significant source of variation for EV, CS, PS, GAIN, ADG, BW or body composition traits. The type of forage steers grazed affected ($P < 0.04$) GAIN, ADG, BW, REA, BF, GMD and IMF% ($P = 0.062$). The correlation coefficients (r) between EV and PS were 0.47 ($P < 0.001$); EV and BW was -0.31 ($P < 0.04$); PS and BF was -0.31 ($P < 0.001$); and PS and RF was -0.32 ($P < 0.001$). The regression coefficients for EV and BW, GAIN and ADG were -0.002 kg ($P < 0.04$); -0.007 kg and -0.18 kg, respectively ($P = 0.074$). The regression coefficients for PS and BW, GAIN and ADG were -0.0015 kg, -0.007 kg and -0.189 kg, respectively ($P = 0.074$).

Application. The type of forage steers grazed influenced ($P < 0.04$) GAIN, ADG, BW, REA, BF, GMD and IMF% ($P < 0.06$). As steer EV and PS increased BW ($P < 0.04$), GAIN and

ADG tended to decrease. Steer EV had a negative correlation with REA, IMF%, BF, ADG, GAIN and BW at the end of the grazing period (168 d). The association between measurements of temperament and body composition traits would suggest that temperamental steers have reduced growth performance and body composition after a 168-d grazing period.

Table 1. Means body composition traits of steers grazing forage type.

Item	Georgia 5	Jesup	Kentucky 31	Ryegrass
Ribeye Area (cm^2)	62.11 ± 2.97^{w}	58.44 ± 2.97^{x}	60.11 ± 2.84^{w}	69.247 ± 2.45^{y}
Back fat (cm)	0.28 ± 0.05^{w}	0.33 ± 0.05^{w}	0.30 ± 0.05^{w}	0.48 ± 0.05^{x}
IMF %	2.81 ± 0.14^{wx}	2.47 ± 0.18^{y}	2.96 ± 0.17^{wx}	3.01 ± 0.14^{x}
Gluteus Medius depth (cm)	19.15 ± 0.66^{wx}	18.49 ± 0.66^{w}	19.20 ± 0.64^{x}	20.70 ± 0.53^{y}

^{wxy}Means with different superscripts within a row differ $P < 0.04$; IMF ($P = 0.063$).

Figure 1. Mean body weight differences for steers grazing forage type.

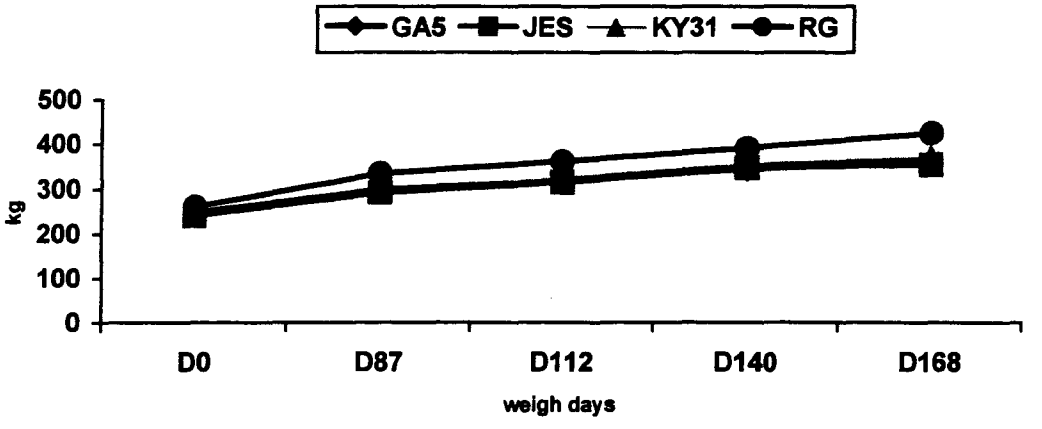

Figure 2. Mean average daily gains for steers grazing forage type.