537 Estimation of heritability and non-genetic factors influencing calf temperament. A. N. Loyd*[1,2], D. G. Riley[1], D. A. Neuendorff[2], A. W. Lewis[2], R. C. Vann[3], T. H. Welsh, Jr.[1], and R. D. Randel[2], *[1]Texas AgriLife Research, College Station, [2]Texas AgriLife Research, Overton, TX, [3]MAFES, Mississippi State University, Raymond.*

Brahman (n = 771) and F_1 Brahman × Hereford (n = 56) calves born over 9 years (2002 to 2010) from 33 sires and 355 dams at the Texas AgriLife Research Center in Overton were utilized to evaluate the genetic and non-genetic factors influencing calf temperament. Calves were evaluated for pen score (PS), exit velocity (EV) and temperament score (TS) 28 d before weaning, at weaning, 28 d post-weaning, 56 d post-weaning, and as yearlings. Mixed models were used to determine non-genetic factors influencing PS, EV and TS at each sampling day and also as repeated records analyses. Contemporary group (calves of the same sex and weaned together) and dam age group were fixed effects, calf age at weaning and proportion Brahman were linear covariates, and sire and calf nested within sire were random effects. Exit velocity, PS and TS differed across contemporary groups ($P < 0.05$) and by day ($P < 0.0001$) but not by proportion Brahman ($P = 0.63$). Dam age group was significant for PS ($P < 0.03$) but not for TS ($P = 0.07$) or EV ($P = 0.17$). Solutions for calf age at weaning were 0.0048, 0.0033 and 0.0040 for PS, EV and TS, respectively ($P < 0.02$; average SE = 0.001). Table 1 presents means for temperament traits by day. Animal models were subsequently used to estimate heritability of PS, EV and TS at weaning: 0.48, 0.29 and 0.43, respectively (average SE = 0.08). From repeated records analyses, the proportion of phenotypic variance due to permanent environmental effects were 0.31, 0.43 and 0.25 (average SE = 0.02) and heritability estimates were 0.44, 0.28 and 0.41 (average SE = 0.07) for PS, EV and TS, respectively. These results suggest temperament is moderately to highly heritable and is influenced by contemporary group, dam age, calf age at weaning, and permanent environmental effects.

Table 1. Means for temperament traits by day[1]

Day	Records, n	PS	EV	TS
28 d pre-wean	519	2.53 ± 0.09[a]	2.18 ± 0.08[abd]	2.35 ± 0.07[a]
Wean	824	2.59 ± 0.08[a]	2.28 ± 0.08[bc]	2.43 ± 0.07[b]
28 d post-wean	520	2.79 ± 0.09[b]	2.33 ± 0.08[c]	2.56 ± 0.07[c]
56 d post-wean	485	2.79 ± 0.09[b]	2.13 ± 0.08[d]	2.45 ± 0.07[b]
Yearling	79	2.43 ± 0.12[a]	1.99 ± 0.12[a]	2.20 ± 0.09[a]

[a,b,c,d]Means within a column lacking a common superscript differ ($P < 0.05$).

[1]PS = pen score; EV = exit velocity; TS = temperament score.

Key words: cattle, heritability, temperament

538 Effects of transportation and lipopolysaccharide (LPS) challenge on vaginal temperature in crossbred heifer calves. A. N. Loyd*[1,4], R. C. Vann[2], J. P. Banta[3], T. H. Welsh, Jr.[1], J. A. Carroll[4], and R. D. Randel[5], *[1]Texas AgriLife Research, College Station, [2]MAFES, Mississippi State University, Raymond, [3]Texas AgriLife Extension, Overton, [4]Livestock Issues Research Unit, USDA-ARS, Lubbock, TX, [5]Texas AgriLife Research, Overton.*

This study evaluated the effects of transportation and subsequent LPS challenge on heifer vaginal temperature (T_{vag}). Brahman × British heifers (n = 44) from Raymond, MS were weaned and acclimated to a high roughage diet fed in GrowSafe bunks for 25 d. Heifers were blocked by BW and breed and randomly assigned to a transportation treatment group: transport (Trans; n = 14); no transport with access to feed and water (Feed; n = 15); and no transport without access to feed and water (NoFeed; n = 15). Hobo loggers were fitted onto blank CIDR devices and inserted to monitor T_{vag}. Trans heifers were loaded onto a livestock trailer, Feed heifers were returned to the GrowSafe bunks, and NoFeed heifers were placed in a dry-lot. Transport ensued for 12 h before Trans heifers were unloaded in Overton, TX. Trans and NoFeed heifers were then allowed access to hay and water for 6.5 h. Trans heifers were transported 12 h back to MS. NoFeed heifers were restricted from feed and water during this time. Feed heifers had access to feed and water throughout the study. Following transport, all heifers had ad libitum access to water and feed in GrowSafe bunks for 12 h. Heifers were then injected subcutaneously with LPS (0.5 µg/kg BW; n = 22) or saline (4.5 µL/kg BW; n = 22). T_{vag} data were analyzed using mixed models specific for repeated measures. Fixed effects for transport T_{vag} included transport, time and their interaction. Fixed effects for post-LPS T_{vag} included transport, LPS, time and all interactions. Trans T_{vag} was maximal (39.7°C) at the onset of transport and declined through 5 h below that of Feed and NoFeed (transport x time; $P < 0.01$). Trans T_{vag} remained lower than Feed and NoFeed for the remainder of both transports. No transport x LPS interaction was observed ($P = 0.92$) post-LPS. LPS-treated heifers had elevated ($P = 0.01$) T_{vag} above that of saline-treated heifers from 1 h to 7 h, with peak T_{vag} (39.6°C) occurring 4 h post-LPS. At 7 h, T_{vag} of LPS- and saline-treated heifers were similar. These results indicate that handling and loading of calves before transport induced a transient febrile response that subsided once transportation began.

Key words: cattle, LPS, transport

539 Chromium supplementation enhances the metabolic response of steers to lipopolysaccharide (LPS) challenge. N. C. Burdick*[1], B. C. Bernhard[2], J. A. Carroll[1], A. N. Loyd[1], D. N. Finck[2], R. J. Rathmann[2], and B. J. Johnson[2], *[1]Livestock Issues Research Unit, USDA-ARS, Lubbock, TX, [2]Department of Animal and Food Sciences, Texas Tech University, Lubbock.*

The effect of chromium (Cr; KemTRACE Chromium Proprionate 0.04%, Kemin Industries) supplementation on the metabolic response to LPS challenge was examined. Steers (n = 20; 235 ± 4 kg BW) received a premix that added 0 (Con) or 0.2 mg/kg Cr to the total diet (DM basis) for 55d. Jugular catheters were placed before challenge. Blood samples were collected every 30min from −2 to 8, and at 24h relative to LPS challenge (0.5 µg/kg BW). Individual BW were recorded at cannulation, and 24h and 7d post-LPS. Concentrations of glucose, insulin, and nonesterified fatty acid (NEFA) were measured. Data were analyzed using the Mixed procedure of SAS specific for repeated measures with fixed effects of treatment (trt), time, and their interaction. Initial BW did not differ ($P = 0.37$) for Cr (314 ± 8 kg) and Con (324 ± 8 kg). Twenty-four hours post-LPS, Cr steers had lost less weight ($P = 0.03$; −7 ± 2 kg) than Con steers (−14 ± 2 kg). Overall, Con steers tended to lose weight (initial compared with 7d post-LPS BW; −2.4 ± 3.6 kg) and Cr steers tended to gain weight (6.4 ± 3.6 kg; trt $P = 0.09$). Pre-LPS glucose did not differ for Con and Cr steers ($P = 0.97$). Post-LPS there was a time x trt interaction ($P < 0.01$) in that glucose peaked within 0.5h in Cr (153 ± 4 mg/dL) but not Con (111 ± 4 mg/dL)

steers. Glucose then decreased in Cr steers and also decreased in Con steers at 2h compared with baseline ($P < 0.01$). Insulin concentrations were not different between trt pre-LPS ($P = 0.63$). Post-LPS insulin increased ($P < 0.01$), peaking at 2h before returning to baseline. There was a trend for insulin to be greater in Con (1.1 ± 0.1 ng/mL) than Cr (0.9 ± 0.1 ng/mL) steers ($P = 0.13$). Concentrations of NEFA did not differ pre-LPS ($P = 0.54$). Post-LPS NEFA increased ($P < 0.01$), with Cr steers producing greater peak NEFA (0.21 ± 0.02 nmol/L) at 0.5h than Con steers (0.16 ± 0.02 nmol/L; $P < 0.04$). Following peak values, NEFA decreased before increasing again at 3.5h in Cr ($P = 0.04$) and 4h in Con ($P < 0.01$), and remained elevated 24h post-LPS. These data suggest supplementation of Cr enhanced the availability of energy resources, attenuated weight loss, and allowed for a quicker recovery following LPS challenge.

Key words: chromium, LPS, metabolism

540 Effects of transportation and lipopolysaccharide (LPS) challenge on body weight and feed intake of crossbred heifers. A. N. Loyd*[1,4], R. C. Vann[2], J. P. Banta[3], T. H. Welsh Jr.[1], J. A. Carroll[4], and R. D. Randel[5], *[1]Texas AgriLife Research, College Station, [2]MAFES, Mississippi State University, Raymond, [3]Texas AgriLife Extension, Overton, [4]Livestock Issues Research Unit, USDA-ARS, Lubbock, TX, [5]Texas AgriLife Research, Overton.*

An experiment was conducted to examine the effects of transportation and LPS challenge on feed intake (FI) and BW of calves. Brahman x British heifers (n = 44) from Raymond, MS were acclimated to a high roughage diet fed in GrowSafe bunks. Heifers were blocked by BW and breed and randomly assigned to a transportation treatment group: transport (Trans; n = 14); no transport with access to feed and water (Feed; n = 15); and no transport without access to feed and water (NoFeed; n = 15). Trans heifers were loaded onto a livestock trailer, Feed heifers were returned to the GrowSafe bunks, and NoFeed heifers were placed in a dry-lot. Transport ensued for 12 h before Trans heifers were unloaded in Overton, TX. Trans and NoFeed heifers were then allowed access to hay and water for 6.5 h. Trans heifers were loaded onto the trailer and transported for 12 h to Raymond, MS. During this time, NoFeed heifers were restricted from feed and water. Feed heifers had continual access to feed and water throughout the study. After transport, all heifers had ad libitum access to feed and water for 12 h. Heifers were then injected subcutaneously with LPS (n = 22) or saline (n = 22). BW was recorded before transport, after the second transport, before LPS challenge, and 24 and 48 h post-LPS. Daily FI was monitored when heifers had access to GrowSafe bunks. Mixed models were used to analyze FI and BW with transport, LPS, day and all interactions as fixed effects. During the 12-h post-transport period, NoFeed heifers had greater ($P < 0.01$) FI than Trans heifers, which had greater ($P < 0.01$) FI than Feed heifers (8.5, 5.9 and 2.4 kg). Post-LPS FI did not differ among treatments ($P > 0.10$). During the transport period Trans and NoFeed heifers lost more BW ($P < 0.01$; −34.4 and −25.9 kg) than Feed heifers (1.21 kg); BW change was not different ($P > 0.20$) between NoFeed and Trans heifers. Change in BW from pre- to 24 h or 48 h post-LPS was not different ($P > 0.20$). These results suggest that shrink observed in transported calves is likely the result of feed and water withdrawal. However, stress associated with transport may hinder FI immediately following transport.

Key words: cattle, feed intake, transport

541 Microbial diversity in bovine papillomatous digital dermatitis in Holstein dairy cows from upstate New York. T. Santos and R. Bicalho*, *Cornell University, Ithaca, NY.*

Papillomatous digital dermatitis (PDD) is one of the most contagious diseases of cattle adversely affecting the dairy industry by its negative effect on milk production and reproductive performance. Despite this, all the precise factors that predispose to its occurrence are not well understood and, although it is suspected that bacteria play a critical role in the pathogenesis of the lesion, the main agents involved in the etiology remains unclear. The purpose of this study was to use culture-independent methods to determine the microbial diversity in 3 strata of Holstein dairy cows PDD lesions, analyzing whether major differences exist comparing to foot skin of non-infected cows. Both group-specific 16S rDNA PCR-DGGE and clone library sequence of broad-range 16S rDNA showed differences between the microbial composition of healthy dairy cows and the different strata of the lesion. The predominant bacterial community in the lesion, regardless the stratum, consisted of 166 specific phylotypes that fell into 7 bacterial phyla; Firmicutes, Proteobacteria, Spirochaetes, Bacteroidetes, Tenericutes, Synergistetes, and Actinobacteria. Firmicutes and Spirochaetas (particularly, treponemes) were the most prominent group detected. Additionally, one phylotype phylogenetically affiliated with uncultured Archaea was detected in 2 strata of the lesion. Sequences from healthy foot skin samples revealed 86 specific phylotypes that were affiliated with Firmicutes and Proteobacteria, with the latter being the most diverse and frequent. Our study showed a previously unrecognized complexity of the microbial composition in bovine PDD infections from dairy cows. It corroborated the theory that treponemes are involved in PDD disease etiology and it suggested, for the first time, the presence of archaeal members in this particular infection.

Key words: digital dermatitis, microbial diversity, *Treponema*

542 Non-steroidal anti-inflammatory drug administration and repeated muscle biopsies affect the phosphorylation of translation initiation factors. A. L. Wagner*, R. B. Ennis, and K. L. Urschel, *University of Kentucky, Lexington.*

Protocols for measuring protein synthesis (PS) or phosphorylation (P) of translation initiation factors (eIF) require the collection of repeated biopsies (RB) for 48 h post anabolic stimuli. The effect of local inflammation (I) due to RB on the P of eIF has yet to be determined after 48 h. Non-steroidal anti-I drugs (NSAID) have been reported to blunt or not affect muscle PS in response to exercise when administered oral or local in humans, respectively. However, this has not been examined in the horse. The objective of this study was to determine if 5 d of RB in muscle with (+; n = 6) or without (–; n = 6) oral NSAID (phenylbutazone 2g/d) administration would affect the P of eIF in the gluteal muscle of mature horses in response to a feeding stimulus (3g/kg BW of 32.5 ± 0.04% CP as fed). The effects of treatment (treat; + or – NSAID), side, sampling day (day) and treat*day interaction were tested on P of eIF using repeated measures in the MIXED models procedure of SAS. Muscle biopsies were taken 60 min post-feeding from both the left and right gluteal muscles to measure the P of eIF (Akt at Ser^{473}, 4EBP1 at $Thr^{37/46}$, rpS6 at $Ser^{235/236;240/244}$, and p70 S6 Kinase at Thr^{389}) using Western blotting. Within each day, the P of all eIF studied was the same in both the left and right gluteal muscles ($P > 0.05$). For p70 S6 Kinase, rpS6, and 4EBP1 there was a treat*day interaction ($P < 0.05$); where there were increases in the P forms over time in horses not receiving NSAID, and no change in the NSAID group. There was no treat*day interaction for Akt; however, there was

a decrease with day ($P < 0.05$), regardless of treat. Total abundance of rpS6 and 4EBP1 were affected by time ($P < 0.05$), increasing and decreasing, respectively. These results show potential increases in local I due to RB elevates P of eIF after a meal; however, oral NSAID administration eliminates this response. Additional research is needed to determine if increased P of eIF after a meal due to RB in horses not receiving NSAIDs results in elevated PS. Further research is necessary to determine if RB cause locally elevated I cytokines.

Key words: horse, inflammation, mTOR

543 Infusion of interferon-τ into the uterine vein protects the corpus luteum from prostaglandin F2α induced down-regulation of cell survival genes. A. Q. Antoniazzi* and T. R. Hansen, *Animal Reproduction and Biotechnology Laboratory, Department of Biomedical Sciences, Colorado State University, Fort Collins.*

The ovine conceptus secretes interferon-T (IFNT), acts in a paracrine manner to silence upregulation of endometrial estrogen receptor and as a result, the oxytocin receptor; thus preventing luteolytic pulses of prostaglandin F2α (PGF). IFNT also is released into the uterine vein (UV) and has endocrine action on the corpus luteum (CL) through activating IFN stimulated genes (ISGs) such as ISG15. Recently, we described protection of the CL from a 5 mg injection of PGF through 12h pre-exposure to infusion of 200 μg roIFNT/day into the UV on Day 10 of the estrous cycle. It was hypothesized herein that an endocrine role of IFNT during early pregnancy is to stabilize cell survival genes in the CL. Osmotic pumps delivering 200 μg BSA or roIFNT over 24h were surgically installed on Day 10 of the estrous cycle with catheters entering the UV in 20 ewes (n = 10/group). One half (n = 5) of the ewes in each group received a single injection of PGF (5 mg) 12h after pump installation. CL collected 24h following insertion of pumps were examined for ISG15, AKT, BCL-XL, and XIAP mRNA concentration with semiquantitative RT-PCR. All differences described are significant at $P < 0.05$. Infusion of roIFNT into the UV increased ISG15 mRNA concentrations in CL confirming endocrine delivery of roIFNT to the CL. AKT mRNA concentrations were similar in CL from BSA, roIFNT and roIFNT+PGF groups, but were downregulated in the BSA+PGF group. XIAP mRNA concentrations increased in CL from roIFNT-infused ewes and decreased in CL from BSA+PGF infused ewes compared with BSA-infused ewes and IFN-infused ewes injected with PGF. Infusion of roIFNT resulted in BCL-XL mRNA concentrations that were similar to BSA-infused ewes, and following injection with PGF to levels that were lower than IFN-infusion alone, but greater than IFNT-infused and PGF injected ewes. It is concluded that AKT, BCL-XL and XIAP mRNAs are downregulated within 12h in response to PGF. Endocrine action of IFNT on the CL stabilizes these cell-life genes, which may contribute to luteal resistance to luteolysis during pregnancy. USDA AFRI 2011–67015–20067.

Key words: interferon, pregnancy, corpus luteum

544 The influence of the addition of heparin binding protein and tissue inhibitors of metalloproteinases-2 to sexed bovine semen on conception rate and pregnancy rate. B. J. Agado*[1,2], D. A. Neuendorff[2], G. L. Shafer[1,2], M. E. Kjelland[4], J. Moreno[4], M. A. Lammoglia[5], S. Romo[6], A. W. Lewis[2], T. H. Welsh Jr.[1,3], and R. D. Randel[2], *[1]Texas A&M University, College Station, [2]Texas AgriLife Research-Overton, Overton, [3]Texas AgriLife Research, College Station, College Station, [4]Sexing Technologies, Navasota, TX, [5]Universidad Autonoma de Veracruz, Tuxpan, Veracruz, Mexico, [6]Universidad Nacional Autonoma de Mexico, Cuautitlan, Estado de Mexico, Mexico.*

The addition of heparin binding protein (HBP) and tissue inhibitors of metalloproteinases-2 (TIMP-2) to enhance fertility of bovine semen sexed by flow cytometry was evaluated. Hereford bulls (n = 2) were transported to Sexing Technologies (Navasota, TX) for semen collection and isolation of X chromosome bearing sperm. Addition of exogenous HBP and TIMP-2 to semen samples was verified by immuno-fluorescence. Brahman heifers (n = 26) and cows (n = 86) were randomly and equally assigned to one of 2 treatment groups, HBP/TIMP-2 (HBP) addition or no HBP/TIMP-2 (C) addition. The females were artificially inseminated (AI) by 2 technicians. Thirty-seven cows were AIed with conventional Brahman bull semen to determine a baseline herd fertility. Females were AIed 12 h after the onset of standing estrus. The straw concentrations were 2.1×10^6 cells/straw for sexed semen and $25*10^6$ cells/straw for the conventional semen. Post thaw motilities of sexed sperm cells are: Sire 1 C = 55%, HBP = 60%; Sire 2 C = 50%, HBP = 50%. Pregnancy was determined via rectal palpation 45 d after the end of the breeding season (15 May to 22 June 2010). Two criteria were contrasted: 1st service conception rate (FSCR) and pregnancy rate (PR). Data were analyzed by Pearson Chi-Square test. The addition of HBP did not influence FSCR (HBP: 28.1% vs. C: 38.2%; $P = 0.2554$) or PR (HBP: 45.6% vs. C: 52.7%; $P = 0.4616$). Sire influenced FSCR (Sire 1: 41.7% vs. Sire 2: 23.1%; $P = 0.0370$) and PR (Sire 1: 65.0% vs. Sire 2: 30.8%; $P = 0.0003$). Parity did not influence FSCR (cow: 30.2% vs. heifer: 42.3%; $P = 0.2513$) but tended to influence PR (cow: 44.2% vs. heifer: 65.4%; $P = 0.0581$). Conventional Brahman semen had a 56.8% FSCR compared with 33.0% for sexed semen ($P = 0.0103$) and PR of 75.7% with conventional semen compared with 49.1% for sexed semen ($P = 0.0048$). The addition of HBP/TIMP-2 did not improve fertility in female Brahman bred using AI. Sire was a major source of variation in fertility of sexed semen. Conventional frozen semen had greater fertility than sexed frozen bull semen.

Key words: sexed semen, heparin binding protein, bovine

545 Effects of acclimation to handling on performance, reproductive, and physiological responses of *Bos taurus* beef heifers. B. I. Cappellozza*, R. F. Cooke, F. N. T. Cooke, and D. W. Bohnert, *Oregon State University–Eastern Oregon Agricultural Research Center, Burns.*

Thirty-eight Angus × Hereford heifers were initially evaluated, within 45 d after weaning, for body weight (BW) and puberty status (d 0 and 10), and temperament by measurements of chute score and exit velocity (d 10 only). On d 11, heifers were stratified by puberty status, temperament, BW and age, and randomly assigned to receive or not (control) an acclimation treatment. Acclimated heifers were exposed to a handling process 3 times weekly (Mondays, Wednesdays, and Fridays) for 4 weeks (d 11 to 39 of the experiment). The acclimation treatment was applied individually to heifers by processing them through a handling facility, whereas control heifers remained undisturbed on pasture. Heifer puberty status, evaluated via plasma progesterone concentrations, and BW were assessed again on d 40 and 50, d 70 and 80, d 110 and 120, d 140 and 150, d 170 and 180, and d 210 and 220 of the study. Blood samples collected before (d 10) and at the end of the acclimation period (d 40) were also analyzed for plasma concentrations of cortisol, haptoglobin, and ceruloplasmin. Heifer temperament was assessed again on d 40 and d 220. No treatment effects were detected for BW gain ($P = 0.88$). Acclimated heifers tended ($P = 0.08$) to have greater

exit velocity after the acclimation process, but reduced ($P = 0.02$) exit velocity on d 220 compared with control cohorts. Acclimated heifers had reduced plasma concentrations of cortisol ($P = 0.04$) and haptoglobin ($P = 0.01$) compared with control heifers after the acclimation period (25.7 vs. 34.1 ng/mL for cortisol and 5.3 vs. 5.9 absorbance at 450 nm × 100 for haptoglobin, respectively). Puberty attainment was hastened in acclimated heifers compared with control ($P = 0.01$). At the end of the study (d 220), a greater ($P = 0.02$) number of acclimated heifers were pubertal compared with control cohorts (63.1 vs. 31.6% of pubertal heifers, respectively). Results from this study indicated that acclimation to human handling after weaning reduced circulating concentrations of substances associated with behavioral stress and hastened puberty attainment in *Bos taurus* beef heifers.

Key words: *Bos taurus* heifers, acclimation to handling, puberty

546 Effects of temperament on reproductive and physiological responses of beef cows. R. F. Cooke*[1], D. W. Bohnert[1], F. N. T. Cooke[1], C. Mueller[2], and T. DelCurto[2], *[1]Oregon State University–Eastern Oregon Agricultural Research Center, Burns, [2]Oregon State University–Eastern Oregon Agricultural Research Center, Union.*

A total of 435 multiparous lactating Angus × Hereford cows, located at 2 different research stations (Burns, n = 243; Union, n = 192) were sampled for blood and evaluated for BCS and temperament before the beginning of the breeding season. Temperament was assessed by chute score and chute exit velocity score, which were combined into a final temperament score (1 to 5 scale; 1 = calm temperament, 5 – excitable temperament). Cows were classified according to the final temperament score (≤3 = adequate temperament, > 3 = excitable temperament). Blood samples were analyzed for plasma concentrations of cortisol, haptoglobin, and ceruloplasmin. During the breeding season, cows were exposed to mature Angus bulls for a 50-d breeding season (1:18 bull to cow ratio). However, cows located at the Union station were also assigned to an estrus synchronization + timed-AI protocol before bull exposure. Pregnancy status was verified by detecting a fetus with rectal palpation approximately 180 d after the end of the breeding season. Plasma cortisol concentrations were greater ($P < 0.01$) in cows with excitable temperament compared with cohorts with adequate temperament (19.7 vs. 15.1 ng/mL, respectively). No effects were detected ($P > 0.26$) for BCS and plasma concentrations of haptoglobin and ceruloplasmin. Pregnancy rates tended to be reduced ($P = 0.10$) in cows with excitable temperament compared with cohorts with adequate temperament (89.3 vs. 94.0% pregnant cows/total exposed cows, respectively). Further, the probability of cows to become pregnant during the breeding season was affected quadratically ($P = 0.05$) by temperament score (91.4, 95.0, 94.3, 87.6, and 59.3% of pregnancy probability for temperament scores of 1 through 5, respectively). Results from this study indicate that excitable temperament is detrimental to reproductive performance of *Bos taurus* beef cows, independently of BCS and breeding system.

Key words: beef cows, temperament, reproduction