

Physiology and Endocrinology: Hormonal Regulation of the Estrous Cycle in Beef Cattle

T264 Effects of 72-h temporary calf removal prior to fixed-time AI on pregnancy rates and subsequent calf performance in suckled beef cows. G. H. L. Marquezini^{*1}, V. R. G. Mercadante¹, S. L. Bird², B. J. Funnell², and G. C. Lamb¹, ¹University of Florida, Marianna, ²University of Minnesota, Grand Rapids.

We determined whether 72 h calf removal (CR) before fixed-time AI (TAI) would increase pregnancy rates or alter subsequent calf performance in suckled, crossbred beef cows. Cows at 2 locations were stratified by days postpartum and parity and randomly assigned to one of 2 treatments: 1) received 100 µg GnRH and a CIDR insert (d -7), followed in 7 d by 25 mg PGF_{2α} and CIDR removal (d 0), followed in 72 h by GnRH and AI (d 3; Control; n = 105). 2) Same as control but calves were removed from their dams for 72 h between d 0 and d 3 (CR; n = 112). Transrectal ultrasonography was used to follow follicle and corpus luteum development on d 0, 3, and 10 and to determine pregnancy status on d 28. Blood samples were collected on d -14, -7, 0, 3, 10, and 28 to determine concentrations of progesterone. Calf weights were determined on d 0, 3, 32, and 140. Pregnancy rates tended ($P = 0.12$) to differ between Control (33.3%) and CR (43.5%). Calf removal did not alter follicle size on d 3, but on d 10 noncycling cows exposed to CR (3.1 ± 0.3 ng/mL) had greater ($P < 0.02$) concentrations of progesterone than Controls (2.0 ± 0.3 ng/mL). On d 10, no difference in concentrations of progesterone were detected for cycling cows. On d 0 calf weights were similar between Control (96.6 ± 2.4 kg) and CR (96.7 ± 2.4 kg) treatments, whereas on d 3 (99.7 ± 2.4 and 94.0 ± 2.3 for Control and CR, respectively), 32 (125.3 ± 2.4 and 119.0 ± 2.3 kg for Control and CR, respectively) and 140 (226.2 ± 2.4 vs. 212.9 ± 2.3 kg for Control and CR, respectively) weights were greater ($P < 0.05$) for Control than CR calves. When calves were classified into age ranges of young (25 to 40 d), medium (41 to 80 d), and old (>80 d) on d 0, young calves lost ($P < 0.001$) more weight as a percentage of body weight during 72 h of calf removal than older calves, whereas medium calves were intermediate. We conclude that calf removal for 72 h tended to increase pregnancy rates, while having negative impacts on subsequent calf performance.

Key Words: calf removal, beef cows, estrous synchronization

T265 Timed AI pregnancy rates in suckled beef cows in response to equine chorionic gonadotropin (eCG). L. D. Wallace¹, S. L. Pulley^{*1}, K. C. Olson¹, J. R. Jaeger¹, J. W. Bolte¹, S. K. Johnson¹, L. A. Pacheco¹, K. Bischoff², T. Loyd², G. C. Lamb², and J. S. Stevenson¹, ¹Kansas State University, Manhattan, ²University of Florida, Marianna.

Previously, eCG administered before induced luteolysis stimulated follicle growth and increased progesterone secretion by the corpus luteum (CL) formed after ovulation in cattle. Our objective was to monitor timed AI pregnancy rate (PR) in beef cattle subjected to eCG. Suckled beef cows (n = 513; pure- and crossbred Angus, Simmental, and Hereford) were enrolled in a 7-d CO-Synch + CIDR protocol (100 µg GnRH at CIDR insertion [d -7]; 25 mg PGF_{2α} (PGF) at CIDR removal [d 0]; and 100 µg GnRH at AI 66 h after PGF [d 3]) at 3 locations. Cows were assigned randomly to be controls or receive eCG (200 IU i.m.) at the time of PGF injection and CIDR insert removal. Pregnancy was diagnosed by transrectal ultrasonography at median d 35 and 67 after AI. Serum progesterone concentration (ng/mL) was determined in blood collected on d -17, -7, 0, 3, and at both pregnancy diagnoses (pregnant cows only) to determine cycling status, luteolysis, and potential differences in CL function after AI. Pretreatment cycling status differed ($P < 0.01$) among locations (locations 1 = 76.5%; 2 = 54.3%; and 3 = 27.4%).

For cows having elevated (≥ 1 ng/mL) progesterone at CIDR insert removal, 97.4% had luteolysis, with 17.3% of cows having low (<1 ng/mL) progesterone at insert removal and at timed AI, and 1.2% having increasing progesterone from insert removal to timed AI. Progesterone did not differ on d 35 of pregnancy (6.0 ± 0.3 and 6.4 ± 0.4) or d 67 (6.6 ± 0.4 and 6.4 ± 0.3) for eCG and controls, respectively. Unadjusted PR on d 35 was 42.9 vs. 49.8% for eCG vs. controls, respectively. Herd, cycling status, technician, and treatment influenced PR. Cycling cows were 1.5 times more ($P = 0.046$; 95% CI = 1.01–2.27) likely to conceive than noncycling cows. Control cows were 1.5 times more ($P = 0.036$; CI = 1.03–2.13) likely to conceive than those treated with eCG. Cows in location 3 were 1.8 to 3.5 times more ($P = 0.004$; CI = 1.1–5.6) likely to conceive than cows at other locations. Pregnancy loss to d 67 did not differ between treatments (3.7 vs. 2.3% for eCG vs. controls), respectively. We conclude that eCG treatment did not increase PR under these experimental conditions.

Key Words: timed AI, eCG, beef cattle

T266 Effect of post-insemination GnRH on the pregnancy rate of beef cattle. W. A. Greene^{*} and C. L. Pickworth, *The Ohio State University, Wooster.*

The objective of this study was to determine if administering GnRH 7 d after first artificial insemination (AI) would increase pregnancy rates (PR) in beef cattle. Ninety–3 beef cattle were blocked for breed, parity, postpartum interval (PPI), postpartum cyclicity (as determined by estrus detection and ultrasonography), and breeding method (bred based on observed estrus or timed–bred). Blocks were randomly assigned to either receive GnRH or saline. On d 0, all cattle received 100 µg GnRH i.m. and intra–vaginal 1.38 g progesterone inserts (CIDRs). On d 7, CIDRs were removed and cattle received 25 mg PGF_{2α} i.m. Estrus was observed at 0700 and 1900 and AI occurred 11 – 13 h after estrus was observed. If estrus was not observed, cattle were timed AI (TAI) and received 100 µg GnRH i.m. 70 – 72 h after PGF_{2α}. On d 7 post–insemination, cattle received either 2 mL GnRH (100 µg) or 2 mL saline i.m. Blood samples were collected for plasma progesterone (P4) analyses 14 d post–insemination. Following the synchronization period, repeat breedings were done until d 75. Pregnancy status was determined by ultrasonography on d 110. The estrus detection rate [EDR] was 61.3%. Cattle bred following an observed estrus had a higher ($P < 0.05$) PR to synchronization than TAI cattle (61.4 vs. 33.3%). GnRH and Saline groups had similar ($P > 0.05$) PR to synchronization (46.8 vs. 54.4%), overall PR (87.2 vs. 97.8%), and mean P4 concentrations (2.6 ± 1.6 vs. 2.1 ± 1.6 ng/ml). Cycling (n = 49) and anestrus cattle had similar ($P > 0.05$) EDR (57.1 vs. 65.9%), PR to synchronization (44.9 vs. 56.8%), and overall PR (91.8 vs. 93.2%). A higher ($P < 0.05$) PR to synchronization was noted for cows with a long PPI (>50 d; n = 42) than cows with a short (≤ 50 d; n = 29) PPI (61.9 vs. 31.0%). Cycling animals had higher ($P < 0.05$) P4 concentrations than anestrus animals (2.7 ± 1.9 vs. 2.0 ± 1.1). The pregnancy rate of beef cattle was not affected by the post–insemination administration of GnRH.

Key Words: GnRH, post-insemination, progesterone

T267 Reproductive performance of prepubertal *Bos indicus* heifers after progesterone-based treatments. I. Claro Júnior^{*1}, O. Sá Filho¹, R. Peres¹, F. Aono¹, M. Day², and J. L. Vasconcelos¹, ¹FMVZ-UNESP, Botucatu, SP, Brazil, ²Ohio State University, Columbus.

The objective of this study was to evaluate the effects of treatments with exogenous progesterone (P4) on reproductive performance of prepubertal *Bos indicus* heifers. Prepubertal Nelore heifers (n = 935; 24.0 ± 1.13 mo; 298.0 ± 1.89 Kg; body condition score of 3.2 ± 0.26) were randomly assigned to receive, between experimental Days -12 and 0, no treatments (CIDR0; n = 113), an intravaginal insert containing 1.9 g of P4 (CIDR) that had never been previously used (CIDR1; n = 237), or a CIDR insert that had previously been used 3x, with each use occurring for 9 d (CIDR4; n = 239). An additional treatment group consisted in pubertal heifers receiving a 12.5 mg im injection of dinoprost tromethamine on Day 0 (PGF; n = 346) to be used as controls for evaluation of conception rates. On Day 0, heifers were rectally palpated for uterine score evaluation (UtS; 1 to 3 scale), blood samples were taken for analysis of P4 and follicular diameter (FD) was measured. The breeding season (BS) started on Day 1 and consisted of artificial insemination after detection of estrus between Days 1 and 45, and natural service between Days 46 and 90. There were effects of treatment ($P < 0.05$) on serum concentrations of P4 on Day 0 (CIDR0: 0.37 ± 0.16; CIDR1: 2.31 ± 0.11; CIDR4: 1.20 ± 0.11 ng/mL), FD on Day 0 (CIDR0: 9.45 ± 0.24; CIDR1: 9.72 ± 0.17; CIDR4: 11.42 ± 0.16 mm), UtS on Day 0 (CIDR0: 1.49 ± 0.06; CIDR1: 1.88 ± 0.04; CIDR4: 2.24 ± 0.04), estrus detection rates in 7 d (CIDR0: 19.5%; CIDR1: 42.6%; CIDR4: 38.3%) and 45 d of BS (CIDR0: 52.2%; CIDR1: 72.1%; CIDR4: 75.3%), and on pregnancy rates in 7 d (CIDR0: 5.3%; CIDR1: 14.3%; CIDR4: 18.4%), 45 d (CIDR0: 27.4%; CIDR1: 39.2%; CIDR4: 47.7%) and 90 d of BS (CIDR0: 72.6%; CIDR1: 83.5%; CIDR4: 83.7%). Conception rate in 7 d of BS was greater ($P < 0.05$) in heifers from the CIDR4 (46.8%) and PGF (43.8%) than in CIDR0 (27.3%) and CIDR1 (33.7%) treatments. In conclusion, treatments with P4 hastened puberty and improved pregnancy rates at the beginning of BS, and previously used CIDR inserts are preferable for improvement of reproductive performance in prepubertal *Bos indicus* heifers.

Key Words: *Bos indicus* heifers, puberty, progesterone

T268 Comparison of three doses of prostaglandin F_{2α} in a 5-day CIDR-based synchronization protocol in beef cows. T. Robison*, K. Y. Perry, K. G. Carnahan, T. L. Davis, and A. Ahmadzadeh, *University of Idaho, Moscow.*

The most common timed artificial insemination (AI) programs used are based on the CO-Synch approach which includes the use of an intravaginal progesterone releasing insert (CIDR) and administration of PGF_{2α} to synchronize the estrous cycle in beef cattle. The objective of the present study was to compare the effect of various doses of PGF_{2α} on estrus and circulating progesterone (P4) concentrations of beef cattle synchronized using a 5 d CIDR protocol. Charolais cows (24 to 94 d postpartum) received a CIDR (d 0) for 5 d. On d 5 after CIDR removal, cows were randomly assigned to receive one of 3 treatments; 1) a single injection of 25 mg PGF_{2α} (control, n = 17), 2) a single injection of 37.5 mg PGF_{2α} (large, n = 17), or 3) 2 injections of 12.5 mg PGF_{2α} 7 h apart (split, n = 17). All cows were fitted with estrus detection aids and observed for behavioral estrus 3 times daily and artificially inseminated (AI) according to the a.m.- p.m. rule. Animals that were not detected in estrus received 100 µg GnRH and timed AI 96 h post-PGF_{2α} injection. Blood was collected on d 0 (before CIDR insertion) and d 7 (56 h post-PGF_{2α} treatment) to measure serum P4 concentrations. At 56 h post-PGF_{2α} treatment, mean P4 concentrations were less than 1ng/ml for all cows. However, P4 concentrations were lower on d 0 ($P < 0.05$) for cows ≤40 d postpartum (dpp) compared with cows that were >40 dpp in all treatments. The interval from PGF_{2α} treatment to estrus was not different among treatments and averaged: control = 67 ± 5.8 h, large

= 58 ± 5.7 h, and split = 54 ± 5.6 h. Based on the current study, there was not sufficient evidence to indicate that observed estrus behavior and serum P4 concentrations after treatment with 25 mg PGF_{2α}, 37.5 mg PGF_{2α}, or 2 injections of 12.5 mg PGF_{2α} 7 h apart was different among treatments.

Key Words: beef cows, progesterone, prostaglandin F_{2α}

T269 Pregnancy per AI (P/AI) of dairy cows following presynchronization and splitting the prostaglandin (PGF) injection in the 5d-Cosynch protocol. E. S. Ribeiro*, R. S. Bisinotto, M. Favoreto, L. T. Martins, R. L. A. Cerri, F. T. Silvestre, L. F. Greco, W. W. Thatcher, and J. E. P. Santos, *University of Florida, Gainesville.*

Objectives were to compare P/AI of cows subjected to the 5d-Cosynch protocol either presynchronized or with supplemental progesterone (P4), and with a double dose of PGF either as a single or split injections. In experiment 1, 730 grazing cows were randomly assigned to: Presynchronization (G6G; d -8 0.5 mg of cloprostenol, d -6 GnRH) followed by the 5d-Cosynch protocol with 1 mg of cloprostenol as a single (G6G-SI; d 0 GnRH, d 5 PGF, d 8 GnRH + AI) or split into 2 injections (G6G-TI; d 0 GnRH, d 5 and 6 PGF, d 8 GnRH + AI); or no presynchronization but with an intravaginal P4 insert (CIDR) from the GnRH to PGF with 1 mg of cloprostenol as a single (CIDR-SI; d 0 GnRH + CIDR, d 5 remove CIDR and PGF, d 8 GnRH + AI) or split into 2 injections on d 5 and 6 (CIDR-TI). Ovaries were scanned on d 0 and 5 and plasma analyzed for P4 on d 5 and 8. In experiment 2, 655 cows in a confinement system received an injection of 25 mg of dinoprost at 44 and 60 DIM. On d 72 they were assigned to the 5-d Cosynch with 50 mg of dinoprost as a single (d 0 GnRH, d 5 PGF, d 8 GnRH + AI) or split into 2 injections (d 0 GnRH, d 5 and 6 PGF, d 8 GnRH + AI). Pregnancy was determined 35 and 60 d after AI. In experiment 1, presynchronization with G6G increased ($P < 0.001$) the proportion of cows with a CL on d 0 (80.6 vs. 58.8%), ovulation to the first GnRH (64.2 vs. 50.2%), and presence (95.6 vs. 88.4%) and number of CL at PGF (1.79 vs. 1.30). Luteolysis was greater ($P < 0.001$) for the split injection of PGF (95.9 vs. 72.2%), especially in G6G cows (96.2 vs. 61.7%). An interaction ($P = 0.05$) was observed for P/AI. For CIDR cows, method of PGF administration had no effect on P/AI (CIDR-SI = 30.2 vs. CIDR-TI = 34.3%), whereas for G6G cows, splitting the dose into 2 injections improved P/AI (G6G-SI = 28.7 vs. G6G-TI = 45.4%). In experiment 2, splitting the dose of PGF increased ($P < 0.04$) P/AI on d 35 (44.5 vs. 36.4%) and 60 (40.3% vs. 32.6%) after AI. Presynchronization and splitting the dose of cloprostenol or dinoprost into 2 injections increases P/AI in cows subjected to the 5d-Cosynch protocol.

Key Words: dairy cow, luteolysis, timed AI

T270 Luteal function following a normal versus synchronized estrus in beef heifers. M. F. Smith*¹, D. H. Keisler¹, and F. Stormshak², ¹University of Missouri, Columbia, ²Oregon State University, Corvallis.

The objective was to characterize changes in plasma concentrations of oxytocin and progesterone in response to a prostaglandin F_{2α} (PG) injection on d 6 (d 0 = estrus) following a normal or synchronized estrous cycle. Normally cycling Angus heifers were assigned to the following groups: 1) Normal Cycle (Normal = 5 heifers were given PG on d 6 of the cycle immediately following a normal estrous cycle), 2) Synchronized Cycle (Sync = 5 heifers were given PG on d 6 of the cycle immediately following a synchronized cycle; see below), and 3) Synchronized and Ovariectomized (Sync + Ovx = 4 heifers were synchronized then unilaterally ovxed (luteal ovary) on d 4 of the ensu-

ing cycle and given PG on d 6). The experiment was a randomized complete block design with treatment serving as the block. Estrus was synchronized (Sync and Sync + Ovx groups) as follows: GnRH (100 µg, Cystorelin) injection (im) and insertion of a CIDR followed 7d later with injection (im) of PG (500 µg Estrumate) and CIDR removal. On d 6 of the estrous cycle immediately following a normal or synchronized cycle, each heifer received PG (500 µg Estrumate, iv). Jugular blood samples were collected -10, -5, 0 (immediately before PG injection), 5, 10, 15, 20, and 30 min following injection. Plasma was collected and analyzed for oxytocin and progesterone by RIA. Plasma concentrations of oxytocin increased within 5 min of PG injection in the Normal and Sync heifers but not in the Sync + Ovx heifers indicating an ovarian and likely luteal source of oxytocin in the Normal and Sync heifers. Mean plasma concentrations of oxytocin at 30 min after PG injection were lower ($P < 0.01$) in Sync vs. Normal heifers and plasma concentrations of progesterone were also lower ($P < 0.01$) on d 6 (-15 to 30 min) in Sync vs. Normal heifers. In summary, PG-induced secretion of oxytocin from the developing corpus luteum and plasma levels of progesterone were greater on d 6 of an ensuing cycle following a normal compared with a synchronized cycle.

Key Words: prostaglandin, oxytocin, corpus luteum

T271 Evaluation of 5-day versus 7-day CIDR treatment on reproductive outcomes of beef heifers using a modified timed-AI protocol. A. Ahmadzadeh^{*1}, D. Gunn², J. B. Hall³, and J. B. Glaze Jr.⁴, ¹Univ. of Idaho, Moscow, ²Univ. of Idaho, Fort Hall, ³Univ. of Idaho R & E, Salmon, ⁴Univ. of Idaho R & E, Twin Falls.

The objective of this experiment was to determine the effect of reducing the duration of CIDR insert exposure, in a CIDR-based timed AI protocol, on pregnancy per AI (P/AI) and pregnancy rates in beef heifers. The experiment was conducted in 4 consecutive years. British cross-bred heifers (yr 1, n = 82; yr 2, n = 70; yr 3, n = 86; yr 4, n = 54) were stratified by BW and age and were assigned randomly to one of 2 treatments: 1) CIDR7 heifers (n = 147) received a CIDR insert for 7 d; and 2) CIDR5 heifers (n = 145) received a CIDR insert for 5 d. Heifers in CIDR7 and CIDR5 were given PGF_{2α} upon CIDR removal followed by GnRH (75 µg) and timed AI 55- 56 h after CIDR removal. Estrual behavior was monitored following CIDR removal. Heifers were inseminated by a single technician. Starting on d 14 after AI, heifers were exposed to fertile bulls for 45 d. Blood samples were collected on the day of CIDR insertion. Pregnancy status was determined by ultrasonography at d 32 to 35 and d 67 to 85 after AI. Data were analyzed by logistic regression and ANOVA. Percentage of heifers detected in estrus was different ($P < 0.05$) between years (69%, 44%, 51%, and 51% for yr 1, 2, 3, and 4, respectively) but not different between treatments. At CIDR insertion, mean serum progesterone (P4) were greater in CIDR7 heifers than CIDR5; however there was no effect of year or year by treatment interaction on P4 concentrations. There was a treatment by year interaction effect on P/AI ($P < 0.05$). For CIDR7 and CIDR5, in yr 1 P/AI was 39% and 65.8% ($P < 0.05$); in yr 2, P/AI was 64.7% and 41% ($P < 0.05$), yr 3 P/AI was 59% and 73.8% ($P = 0.09$) and yr 4 P/AI was 50% and 66% ($P = 0.25$). Overall P/AI tended ($P = 0.09$) to be greater for CIDR5 compared with CIDR7 (62.5% vs. 52%). Final pregnancy rates were unaffected by the treatment protocols or year (92% and 95.5% for CIDR7 and CIDR5, respectively). The P/AI results from this study suggests that reducing the duration of CIDR treatment from 7 to 5 d in a CIDR-based TAI protocol may improve P/AI.

Key Words: estrous synchronization, CIDR insert, beef heifer

T272 Rumen temperature during the estrous cycle of beef cows. B. H. Boehmer^{*}, T. A. Pye, and R. P. Wettemann, *Oklahoma Agricultural Experiment Station, Stillwater.*

The objective of this study was to evaluate rumen temperature (RuT) associated with estrus in May to July. Angus cows (n = 46) were administered temperature boluses (SmartStock, LLC) with a bolus gun and estrus was synchronized with PGF_{2α} at 60 to 90 d postpartum. Temperature boluses were programmed to transmit RuT every hour. The onset of estrus was determined by HeatWatch (CowChips, LLC). Progesterone was quantified in plasma collected daily to verify stage of the estrous cycle. Mean RuT for all cows was 38.19 ± 0.01°C and RuT ≤ 35.3°C, which are associated with water consumption, were excluded from analyses. Progesterone and RuT during estrus were analyzed using the MIXED procedure (SAS). Ambient temperature ranged from 8 to 39°C during the experiment and was not associated with RuT. On the day of estrus, RuT was greater ($P < 0.05$, 38.6 ± 0.1°C) compared with 3 d before (38.2 ± 0.1°C) or 3 d after (38.3 ± 0.1°C) estrus. Rumen temperature was greater ($P < 0.05$, 38.8 ± 0.1°C) during the first 8 h after the onset of estrus compared with the same daily hours the day before (38.2 ± 0.1°C) or after (38.1 ± 0.1°C) onset of estrus. Rumen temperature was recorded hourly and progesterone in plasma was quantified daily in cows (n = 20) during an estrous cycle. Concentrations of progesterone in plasma decreased before the increase in RuT at estrus. On the day of estrus, RuT was greater ($P < 0.05$, 39.0 ± 0.1°C) compared with the other days of the cycle (38.5 ± 0.1°C). These results support our previous report that RuT can be used for the identification of estrus in beef cows.

Key Words: rumen temperature, estrus, beef cows

T273 Effects of feed supplementation and method of weaning on the physiology and performance of beef calves. C. Campistol^{*1}, H. G. Kattesh¹, J. C. Waller¹, E. L. Rawls¹, G. M. Pighetti¹, and J. A. Carroll², ¹University of Tennessee, Knoxville, ²Livestock Issues Research Unit, USDA-ARS, Lubbock, TX.

A study was conducted to investigate growth performance and physiological measures of stress in pre- and post-weaned beef calves provided a grain supplement and weaned by fenceline or total separation. Angus steer calves (n = 48; 312.2 ± 27.9 kg), housed on pasture with their dams, were blocked by initial BW and assigned randomly on d 0 to be hand-fed a grain supplement (YS; 4.5 kg/head/d) or no supplement (NS) for 7 d. On d 7, calves (12 NS and 12 YS/group) were weaned by fenceline (Group 1) or total separation to a distant pasture (Group 2). On d 14, Group 1 calves were moved to a pasture lot adjoining Group 2. All calves were weighed and bled on d 0, 7, 10, 14, and 21, and provided access to the grain supplement on d 7–21. Blood was analyzed for plasma cortisol (CORT) and interferon-gamma (IFN-γ) concentration, hematocrit (Hct), red blood cell (RBC) and white blood cell (WBC) total count, and neutrophil:lymphocyte ratio (N:L). By d 7, BW increased ($P < 0.001$) and RBC and IFN-γ decreased ($P < 0.001$) in all calves. However, NS exhibited lower ($P < 0.005$) N:L (0.16 vs. 0.27 ± 0.03) and CORT (74.5 vs. 98.4 ± 7.2 nmol/L) compared with YS calves. By d 10, Group 2 steers experienced a reduction ($P < 0.001$) in BW compared with animals in Group 1, which was more pronounced in the NS calves. Measures for RBC, WBC, IFN-γ and N:L increased ($P < 0.01$) in all calves within 3 d following weaning. Compared with NS, both Hct and CORT for YS calves decreased ($P < 0.01$) over this same period. From d 14–21, Hct decreased ($P < 0.01$) and IFN-γ increased ($P < 0.001$). These results suggest that providing a grain supplement

beginning 7 d before weaning may reduce BW loss and temper the animals stress response due to weaning.

Key Words: beef cattle, pre-weaning supplementation, stress

T274 Effect of serum progesterone levels on conception rate in Creole Rodeo multiparous cows and heifers. J. A. Ramirez-Godínez^{*1}, L. V. Beltrán-Prieto¹, J. Domínguez-Viveros¹, A. Flores-Mariñelareña¹, and A. Quezada-Casasola², ¹*Universidad Autónoma de Chihuahua, Chihuahua, Mexico*, ²*Universidad Autónoma de Ciudad Juárez, Chihuahua, Mexico*.

The aim of the present study was to compare the conception rate (CR) depending on serum progesterone levels (SPL) in Creole Rodeo cows (CC) and heifers (CH) treated with ECP, eCG or hCG, and estradiol benzoate (EB), eCG, and GnRH, respectively, in addition to a CIDR+EB and PGF_{2α} protocol. Thirty-one multiparous CC and 59 CH were randomly assigned to 1 of 3 treatments: CC of T1 (n = 11) received 1 mg of ECP and T2 (n=10) 500 IU of eCG 24 h after CIDR removal, and T3 (n = 10) 2000 IU of hCG 56 h after CIDR removal; CH of T1 (n = 19) received 1.38 mg of EB and T2 (n = 5) same as CC, T3 (n=20) 100 µg

of GnRH 56 h after CIDR removal. CH not detected in estrus from T2 were reassigned to T4 (n=15), same as T2, but 56 h after CIDR removal 100 µg of GnRH were administered. CC and CH in T1 and T2 were AI 12h after detected in estrus, and in T3 and T4 were fixed-time AI 56h after CIDR removal. Blood samples were collected in CC at days 0, 7, 8, 9, 17, 26 through 32, and in CH at days -7, 0, 2, 4, 6, 8, 10, 12 after CIDR insertion. CR was analyzed using PROC CATMOD of SAS. The variation coefficient of SPL of day 0 and 7 were analyzed with PROC MEANS of SAS. In CC, the CR was higher ($P < 0.05$) in T2 (60%) than in T1 (27.27%) and T3 (30%). In CH, CR was similar ($P > 0.1$) being T4 with 46.67% over T1, T2, and T3 (31.58, 40, and 30%, respectively). The variation coefficient of SPL of day 0 and 7 in CC were 82.25% and 82.75%, respectively; for CH was 83.16% at day 0. The SPL were similar between treatments neither in CC nor in CH ($P > 0.1$), and did not have an effect in CR. These results suggest that the use of eCG after CIDR removal might improve the conception rate in multiparous Creole Rodeo cows; in heifers the use of eCG+CIDR+GnRH to induced ovulation, can improve fertility. In addition, the serum progesterone levels at CIDR insertion and at removal did not have an effect in conception rate in multiparous Creole Rodeo cows and heifers.

Key Words: Creole cattle, CIDR, eCG