T24 Yeast supplementation alters the health status of receiving cattle. J. A. Carroll*[1], C. T. Collier[1], L. E. Hulbert1,3, J. R. Corley[2], A. G. Estefan[2], D. N. Finck[3], and B. J. Johnson[3], [1]*USDA-ARS, Livestock Issues Research Unit*, *Lubbock, TX,* [2]*Lesaffre Feed Additives*, *Milwaukee, WI,* [3]*Texas Tech University, Dept. of Animal and Food Sciences*, *Lubbock*.

Our objective was to determine if supplementation of yeast products during the receiving phase would improve the health status of beef calves before and following a low-dose lipopolysaccharide (LPS; 0.25 μg/kg BW) challenge. Twenty-four crossbred calves (203 ± 1.45 kg BW) were blocked by BW and assigned to 1 of 4 dietary treatments for 38 d before LPS exposure: 1) Control (Cont) calves fed an 83% concentrate diet; 2) Live Yeast (LY), calves fed the control diet with the addition of a LY; 3) Yeast Cell Wall (YCW), calves fed the control diet with the addition of a YCW product; and 4) LY plus YCW (LY/YCW). Calves on a common ration were group penned, and diets containing the yeast products were formulated to deliver 5 g•hd^{-1}•d^{-1} of either LY or YCW or 10 g•hd^{-1}•d^{-1} of the LY/YCW combination. On d 38, calves were fitted with jugular catheters and indwelling rectal probes, and moved to individual stanchions. On d 39, blood samples were collected at 30-min intervals from −2 to 8 h and then at 24 h relative to LPS challenge at 0 h. Rectal temperatures (RT) were collected at 1-min intervals from −24 to 24 h post-LPS. During the entire trial, basal RT before LPS tended ($P \leq 0.06$) to differ among groups with Cont calves having higher RT compared with LY/YCW ($P \leq 0.01$) and LY ($P \leq 0.04$) calves. After the LPS challenge, an interaction ($P \leq 0.05$) was observed such that RT remained higher in the Cont calves compared with all other groups. By 10 h post-LPS, RT were still greater ($P \leq 0.05$) in Cont calves compared with all other calves, and remained numerically higher throughout the study. Serum cortisol increased in all groups post-LPS with peak concentrations observed at 1 h. At 1 h post-LPS, serum cortisol concentrations were 26.5 ng/mL greater ($P \leq 0.04$) in Cont calves compared with LY/YCW calves. An interaction ($P \leq 0.01$) was observed for serum interferon-gamma (IFN) such that IFN concentrations tended ($P \leq 0.06$) to be greater in Cont calves compared with YCW calves before LPS exposure. These data indicate that supplementing the diet of receiving beef cattle with yeast products may improve their health during the early phase of the feedlot period, thus allowing for enhanced performance.

Key Words: cattle, immunity, yeast

T25 Impact of mature cow weights on farm profitability and economic weights of beef cattle traits. F. Szabó*[1], K. Keller[1], J. Wolf[2], and M. Wolfová[2], [1]*University of Pannonia Georgikon Faculty*, *Keszthely, Hungary*, [2]*Institute of Animal Science*, *Uhrinéves, Prague, Czech Republic*.

The impact of mature cow weight on the profitability of beef cattle farming and on the economic importance of 10 performance and functional traits was analyzed in Hungary. The examined traits were calving performance, stillbirth and calf losses till weaning, weight of calves at birth, at 120 and at 205 d of age, mature weight of cows, conception rates of heifers and cows and productive lifetime of cows. The cow weight was varied from 500 to 700 kg in 50 intervals. The economic efficiency of all farming systems was expressed as profit per cow and per year. The economic importance of a trait (marginal economic value) was defined as partial derivate of the profit function with respect to trait mean. The program package ECOWEIGHT was used for all calculations. The results showed that beef cattle farming with all cow weight classes could be profitable when including EU subsidies in the incomes of a FARM. Without subsidies, a positive profitable can be reached only when keeping small-framed cows (500 to 550 kg). In all modeled production systems, the most important trait was conception rate of cows followed by weaning weight of calves (at 205 d age) for light cows and productive life of cows in systems with heavy cows.

Key Words: beef cow, profitability, marginal and relative economic weight

T26 Carcass characteristics and chemical composition of *Longissimus* muscle of different genetic groups finished at tropical condition. R. H. de Tonissi Buschinelli de Goes*[1], D. M. Lambertucci[3], K. C. da Silva Brabes[1], A. B. Mancio[2], C. Mistura[4], and D. D. Alves[5], [1]*Universidade Federal da Grande Dourados*, *Dourados, MS, Brasil*, [2]*Universidade Federal de Viçosa*, *Viçosa, MG, Brasil*, [3]*Faculdade de Ciências Biomédicas de Cacoal*, *Cacoal, RO, Brasil*, [4]*Universidade do Estado da Bahia*, *Juazeiro, BA, Brasil*, [5]*Universidade Estadual de Montes Claros*, *Janaúba, MG, Brasil*.

The carcass characteristics and chemical composition of *Longissimus* muscle (LM) of steers at different genetic groups, grazing *Brachiaria brizantha* cv. Marandu, were evaluated. The animals were finished during the rainy season, receiving a protein/energetic supplement, of lower intake, contained corn and soybean meal, with 24% of CP; supplied at 1.1 kg/day. Eighteen beef steers (6 Nellore × Santa Gertrudis-SG, 6 Nellore × Simental-SI and 6 Nellore-NE) were slaughtered at 24 mo of age at 478 ± 6.2 kg. The experiment was analyzed as a complete randomized design and the averages compared by Tukey's test, at 5% of probability. There was no effect for genetic groups for slaughter weight, hot carcass weight (HCW), carcass yield, beef round weight, beef round yield, hind quarter with short ribs weight, spare rips, loin eye area (LEA), fat thickness (FT), yield grade estimated (YG = 72,92–0,489FT-0,02HCW+0,119 LEA), and Brazilian comercial cuts (BCC = 60,33–0,015HCW-0,462FT+0,11 LEA), with the averages of 478,8kg, 254.2kg, 53.05%, 118.6kg, 46.86%, 95.77kg, 13.41kg, 74.02cm^2, 4.09mm, 74.61% and 64.45%, respectively. It was observed difference ($P < 0.05$) for the percentages of moisture, ash, protein, total lipid and cholesterol between the genetic group, in LM. Fat for SG steers was of 3.24g/kg, while SI was of 2.58g/kg and NE of 2.29g/kg, however the fat thickness possesses lower value, what could be inferred that fat in the LM. Lipids could explain the low moisture presented by the crossbreeding animals (73.6%). The meat of the NE presented moisture of 74.1%, with ash of 1.10% and protein of 24.02%. The crossings of SG and SI of 0.98% and 1.02% for ash, 22.71% and 23.4% for protein, respectively. The SG presented a concentration of cholesterol of 48.29 mg/100g of total lipids; while the SI was 46.9 and the NE 46.44mg/100g. The difference in the cholesterol concentration in the muscle is probably associated with the structure of the cells that composes the muscle. The different genetic groups evaluated do not alter the carcass characteristics, but differ in chemical composition of *Longissimus* muscle

Key Words: yield grade, cholesterol, fat thickness

T27 Efficacy of day 23 GnRH for CIDR-Select estrus synchronization for beef heifers bred 12 hours after estrus or by fixed-time AI. J. L. Seabrook*, R. K. Peel, G. E. Seidel, and J. C. Whittier, *Colorado State University*, *Fort Collins*.

The objective of this study was to compare AI pregnancy rates resulting from administration of the CIDR Select synchronization protocol either with or without administration of d 23 GnRH. Angus and Hereford heifers at 4 locations were randomly assigned to treatments, blocking for body condition score and frame score. All heifers received 100 µg GnRH i.m. and a CIDR (1.38 g progesterone) d 0 – 14. Heifers assigned to the CIDR Select with GnRH received 100 µg GnRH i.m. on d 23; controls were processed through the facilities but did not receive GnRH. All heifers received 25 mg dinoprost tromethamine (PG) i.m. on d 30. The breeding protocol for Experiment 1, conducted at 3 locations (n = 270), was to breed heifers 12 ± 2 h after exhibition of estrus (n = 132); heifers that were not observed in estrus within 60 h from PG received 100 µg GnRH i.m. and were fixed-time AI (TAI) 60 ± 2 h after PG administration (n = 138). For Experiment 2, heifers at a fourth location (n = 326) were fitted with heat detection patches at the time of PG administration, which were scored when all were TAI 60 ± 2 h later. Treatment was not a source of variation in conception rates for heifers in Experiment 1: GnRH treated 56.4%, no GnRH 52.9% ($P = 0.58$). Heifers observed in estrus within 60 h after PG had a higher conception rate, averaged over the d 23 GnRH treatments, than heifers TAI (63.9%, 45.1% respectively; $P < 0.01$). Conception rates for heifers in Experiment 2 also were not affected by treatment: GnRH treated 57.1%, no GnRH 55.9% ($P = 0.83$). Patch score was correlated with a positive pregnancy diagnosis ($P < 0.01$); heifers with pristine patches had lower conception rates (34.8%) than those with fully worn patches (62.8%). Administering GnRH on d 23 of the CIDR-Select synchronization protocol was not associated with higher conception rates in these experiments.

Key Words: beef heifer, CIDR-Select, GnRH

T28 Fatty acid profile of feedlot Brangus bullocks fed with monensin or polyclonal antibodies. R. S. Barducci*[1,2], L. M. N. Sarti[1], M. D. B. Arrigoni[1], R. D. L. Pacheco[1], D. D. Millen[1], C. L. Martins[1], S. R. Baldin[1], F. S. Parra[1], J. R. Ronchesel[1], T. M. Mariani[1], J. P. S. T. Bastos[1], T. C. Putarov[1], D. Tomazella[1], and H. D. Rosa[1], [1]*FMVZ/UNESP*, *Botucatu, São Paulo, Brazil*, [2]*Apoio FAPESP*, *São Paulo, Brazil*.

This study was designed to test the effects of polyclonal antibody preparation (PAP) against lactate-producing rumen bacteria or monensin (MON) on fatty acid profile of feedlot Brangus (BR) bullocks. The experiment was designed as a 2 × 2 factorial arrangement, with 6 replications (3 bullocks/pen), which 72 9-mo-old bullocks (285.9 ± 38.7 kg) were distributed in 4 treatments and the animals were fed diets containing no additive (control), MON at 30 mg•kg^{-1} of DM, PAP at 450 mg•kg^{-1} of DM and PAP+MON (30 mg•kg^{-1} + 450 mg•kg^{-1}) for 112-d. Animals were adapted for 21-d before a high concentrate diet. The diet contained 47.5% high moisture corn, 20% citrus pulp, 12.8% soybean meal, 13.7% sugarcane bagasse, 4.6% Cynodon hay and 1.5% supplement. After slaughter, the carcass were chilled for 24-h and samples of back fat thickness of Longissimus dorsi muscle were collected from 48 animals (12 animals of each treatment) and stored for fatty acid profile analysis. No significant effects were observed among treatments ($P > 0.05$) for the variables of fatty acid profile. However, a significant ($P < 0.05$) PAP x MON interaction was observed for PUFA, which animals fed MON presented lower value ($P < 0.05$) than those fed PAP+MON (2.179 vs. 2.534 g/100g, respectively). Thus, the supplementation of PAP or MON separated was not a good alternative to improve fatty acid profile; however when both additives are fed together (PAP+MON) can be a useful tool to get better fatty acid profile, in this study there was a synergism between both additives.

Key Words: PAP, profile fatty acids, monensin

T29 Shelf-life characteristics of longissimus muscle of feedlot bullocks supplemented with vitamin D and E. S. R. Baldin*[1,2], F. S. Parra[1], J. R. Ronchesel[1], N. R. B. Consolo[3], M. D. B. Arrigoni[1], D. D. Millen[1], C. L. Martins[1], R. D. L. Pacheco[1], R. S. Barducci[1], L. M. N. Sarti[1], D. Tomazella[1], A. L. Campanini[1], J. M. P. Silva[1], A. S. C. Pereira[1], D. P. D. Lanna[4], [1]*FMVZ/UNESP*, *Botucatu, São Paulo, Brazil*, [2]*Apoio FAPESP*, *São Paulo, Brazil*, [3]*USP*, *Pirassununga, São Paulo, Brazil*, [4]*ESALQ*, *Piracicaba, Sã Paulo, Brazil*.

The objective of this study was to evaluate the effects of vitamins D and E supplementation on shelf-life characteristics: color, pH and fatty acid profile of longissimus muscle (LM) of feedlot bullocks. It was used 36 7-mo-old bullocks: 18 Nellore (NE) and 18 Canchim (CC; 5/8 Charolais, 3/8 Nellore), arranged in a 2 × 2 factorial design. During 47 d and 10 d before slaughter, 9 bullocks from each breed type were supplemented daily with vitamin E at 1300 IU and vitamin D at 7.5 × 10^6 IU, respectively. LM samples were harvested between 12th and 13th ribs and placed on polystyrene trays, covered with PVC plastic film and exposed to cooling, all of wich simulated retail display conditions. Temperature varied between 0°C and 4°C and light controlled (125 lx), during 7 d. Daily, samples were unpacked, exposed to the environment for 20 min and then, measurements of color and pH were taken. For the fatty acids profile analysis, it was collected subcutaneous fat subsamples at the day zero (PO) and at d 7 (P7). There was no effect ($P > 0.10$) of vitamin D and E supplementation for the variables in this study. There was an effect ($P < 0.05$) of period on color and pH, but on P3, samples of all treatments presented undesirable color for consumption. According to the fatty acids profile (g/100g), there was an effect of genetic group ($P < 0.05$) for: C14:0 (NE:23.75 vs. CC:25.83), C18:1 (NE:47.31 vs. CC:43.13), C18:2C9T11 (NE:0.79 vs. CC:0.67), SFA (NE:41.83 vs. CC:46.60), UFA (NE:56.59 vs. CC:51.77) and MUFA (NE:54.47 vs. CC: 49.59). Also, there was an effect of period ($P < 0.05$) on C18:1 (P0:44.78 vs. P7:45.76), C18:2C9T11 (P0:0.69 vs. P7:0.76) and C18:1T10T11T12 (P0:1.21 vs. P7:0.36). All in all, vitamin D and E supplementation did not improve shelf-life characteristics in this study.

Key Words: cooling, color, fatty acid profile

T30 Effect of Vitamin D and E supplementation on attributes of meat tenderness of feedlot bullocks. S. R. Baldin*[1,2], F. S. Parra[1], J. R. Ronchesel[1], N. R. B. Consolo[3], M. D. B. Arrigoni[1], D. D. Millen[1], C. L. Martins[1], R. D. L. Pacheco[1], R. S. Barducci1[1], L. M. N. Sarti[1], D. Tomazella[1], A. L. Campanini[1], F. A. S. Miquilin[1], A. S. C. Pereira[3], D. P. D. Lanna[4], [1]*FMVZ/UNESP*, *Botucatu, São Paulo, Brazil*, [2]*Apoio FAPESP*, *São Paulo, Brazil*, [3]*USP*, *Pirassununga, São Paulo, Brazil*, [4]*ESALQ*, *Piracicaba, Sã Paulo, Brazil*.

The study, conducted at São Paulo State University feedlot, Botucatu campus, was carried out to evaluate the effects of vitamins D and E supplementation on attributes of meat tenderness of 2 different genetic groups of feedlot bullocks. It was used 36 7-mo-old bullocks: 18 Nellore (NE) and 18 Canchim (CC; 5/8 Charolais, 3/8 Nellore), with average initial body weight of 234.53 ± 22.15 and 248.13 ± 34.67 kg, respectively, arranged in a 2x2 factorial design (supplementing vitamins x genetic group). Cattle were fed for 135 d, including 27 d of adaptation (AD). During 47 d before slaughter, 9 bullocks from each genetic group were daily supplemented with vitamin E at 1300 IU Also, the same bullocks 10 d before slaughter, were daily supplemented with vitamin D at 7.5 × 10^6 IU. On 10th d of vitamin D supplementation, blood samples were collected from jugular vein for plasmatic Ca evaluation. Rib eye samples were harvested between 12th and 13th ribs for analysis of Shear Force (SF), miofibrilar fragmentation index (MFI), total lipids (TL) and vitamin D and E meat concentrations. There was no effect ($P > 0.10$) of

vitamin D and E supplementation on SF, MFI, TL and vitamin D and E meat concentrations. Nevertheless, cattle fed with vitamin D and E had greater ($P < 0.05$) plasmatic Ca level in relation to control (189.7 vs. 152.40 mg/L). However, for genetic group, CC presented greater ($P < 0.05$) value of MFI than NE (69.07 vs. 62.61), and NE presented greater ($P < 0.05$) vitamin D and E meat concentrations (mg/kg) in relation to CC (0.19 vs. 0.03 and 2.88 vs. 1.29, respectively). The supplementation of vitamin D and E increased plasmatic Ca concentration, but it was not effective to enhance attributes of meat quality of 2 different genetic groups of feedlot bullocks.

Key Words: vitamin E, vitamin D, meat

T31 Influence of weaning strategy on growth and immunity in beef calves. L. B. Krebs*, A. Loyd, and E. G. Brown, *Stephen F. Austin State University*, *Nacogdoches, TX*.

The prevailing method of weaning calves involves abrupt separation from cows resulting in change in feed and living environment. These changes result in behavioral and physiological responses indicative of distress that are unfavorable to beef production and animal welfare. Twenty-six crossbred beef calves and their dams were used to evaluate stress and performance responses to 2 weaning strategies (2-stage and fenceline) independent of each other and in combination compared with traditional abrupt weaning. Cows and calves were assigned to treatments based on calf body weight and parity of the cow. Four days before weaning, one group of calves (n = 13) were fitted with an antisuckling device (2-stage) while remaining with the herd. At weaning, devices were removed and half of these calves were moved to a remote location (abrupt) and half placed in a pasture adjacent to their dam (fenceline). The calves not fitted with an antisuckling device before weaning (n = 13) were moved to a remote location or placed in a pasture adjacent to the dam in the same proportion as the previous group. Blood samples were collected on all cows and calves on d −4, 0, and 4 to measure white blood cell count, lymphocytes and neutrophils. Cows and calves were weighed on d −4, 0, and 28. Body condition scores were collected on cows on d −4, 14, and 28. No difference ($P = 0.38$) was observed for ADG in calves before weaning between treatments, but ADG was greater ($P < 0.001$) in fenceline weaned calves compared with abrupt separation. No differences ($P < 0.25$) were observed for white blood cell count, lymphocytes, neutrophils, or lymphocyte:neutrophil ratio in cows or calves. Average daily gain and body condition scores in the cows were not affected ($P < 0.20$) by weaning strategy. Results suggest that fenceline weaning may be an alternative to traditional weaning practices.

Key Words: weaning, fenceline weaning, immunity

T32 Effects of origin, breed, sex and season on productive performance of cattle arriving to feedlots located in northern Mexico (Mexicali, B.C.). L. C. Muñoz-Salas[1], C. F. Arechiga*[1], J. I. Aguilera-Soto[1], M. A. Lopez-Carlos[1], S. Mendez de Lara[1], F. Mendez-Llorente[1], M. Rincon[1], F. J. Gutierrez[1], C. A. Medina-Flores[1], L. Avendaño-Reyes[2], and A. Correa-Calderon[2], [1]*Universidad Autonoma de Zacatecas*, *Zacatecas, Mexico*, [2]*Universidad Autonoma de Baja California*, *Mexicali, BC, Mexico*.

Objective of present trial was to determine the effects of place of origin and nutritional source, breed, sex, season and initial weight on productive performance of cattle arriving to feedlots located in northern Mexico. Average daily gain (ADG), feedlot feeding period (FFP), and carcass quality (CQ; i.e, dressing percentage) was evaluated. Cattle (n = 12,437), were allotted into 236 feedlots. The study included mostly heifers (n = 8,342), but also yearling bulls, steers and cows. Data was analyzed by SAS proc GLM including origin, breed, sex, year and initial weight as main effects. Feedlot feeding period and average daily gain was 95.2 d and 1.55 kg for cattle consuming forage; 114 d and 1.42 kg for cattle already consuming a mixed ration in another feedlot; 124 d and 1.42 kg for cattle coming from irrigated prairies; 131 d and 1.42 kg for cattle coming from commercial reception pens; and 133 d and 1.46 kg for cattle coming directly from pasture. Carcass quality was 60.9, 64.7, 61.1, 61.6 and 61.9%, respectively. Breed affected ADG, FFP, CQ ($P < 0.05$) whereas sex did not ($P > 0.05$). Summer season compromised productivity compared with the other seasons ($P < 0.05$). Initial weight entering feedlot also affected FFP and ADG. Heavier animals had a shorter feeding period and a greater weight gain. Thus, we conclude that cattle origin, breed, season and initial weight entering feedlot surely affected feedlot feeding period, average daily gain and dressing percentage.

Key Words: beef cattle, feedlot, Mexico

T33 Number of days to accurately measure individual feed intake in lactating females. K. A. Gray*, B. L. Winslow, M. H. Poore, and J. P. Cassady, *North Carolina State University*, *Raleigh*.

The objective of this study was to evaluate relationships among feed intake over different periods of time within a 104 d period in Angus females. Data were collected at the Upper Piedmont Research Station in Reidsville, NC. In February lactating Angus females (n = 35) began the feeding period weighing 470 ± 7.8 kg at 3 years of age while calves ranged in age from 7 to 70 d of age. All cows in this study were previously trained and adapted to the Calan gates for a period of 98 d when they were growing heifers. Cows were assigned the same gate as they had when they were heifers. Cows were allowed a 2-wk period of readaptation to Calan gates and were fed a roughage-based ration targeted to maintain body weight. Following readaptation, cows began a 104 d test. Feed offered was recorded daily and body weights for both cow and calf were taken every 14 d. Linear regression of weight on time was used to estimate ADG for cow and calf. Cow ADG was slight at 0.25 ± 0.025 kg/d and calf ADG was 0.84 ± 0.033. Average daily dry matter intake (DMI) was estimated for different periods of time within the 104 d test. Every combination of 28, 35, 42, 49, 56, 63, 70, 77 and 84 d period within the 104 d test was used to estimate different DMI for each period consisting of a total of 146 different periods. Correlations were then calculated among all combinations of DMI periods to determine if a shorter test trial would be sufficient to estimate DMI and to determine if feed intake differed due to stage of lactation. It was found that the best estimate for the 104 d DMI were the 4 84 d periods specifically the middle 2 84 d periods ($r_p = 0.99$). As duration of DMI periods decreased correlation between the period and 104 d DMI slightly decreased, as expected. Among the 10 42 d periods it was found that the correlation between the 42 d period and the 104 d DMI had only decreased to 0.90 - 0.95. It was concluded that DMI measured over 104 d and 42 d had a high correlation making it possible to decrease the duration of the testing time while maintaining accurate estimates of DMI.

Key Words: Angus cows, lactating, dry matter intake

T34 Effect of cutting time and maceration on nitrogen utilization of trefoil-grass hay by growing steers. A. F. Brito*[1], C. Lafrenière[2], and R. Berthiaume[2], [1]*University of New Hampshire*, *Durham,* [2]*Agriculture and Agri-Food Canada*, *Sherbrooke, QC, Canada*.

Feeding forage cut at sundown (PM) has been shown to improve N utilization by cattle. However, nutritional value of PM forage may be

compromised due to rainfall, prolonged wilting time, leaching, and respiration. Maceration can enhance field drying and reduce wilting time. A birdsfoot trefoil-grass field was divided in 4. Half was cut at 1800 h (PM) with 50% of the PM herbage macerated after 12 h (PMM) and left to wilt. The other half was cut at 0600 h (AM) the next morning with 50% of the AM herbage macerated after 4 h (AMM) and left to wilt. The 4 hays were field dried, baled at the same time, and chopped before feeding. Four steers were used in a 4 × 4 Latin square with a 2 × 2 factorial arrangement of treatments to investigate the effects of forage cutting time (CT) and maceration (MAC) on N balance. Total collection of urine and feces were done for 6 consecutive days at the end of each 21-d period. Concentration (% DM) of CP averaged 11.6 (PM), 11.2 (AM), 10.2 (PMM), and 10.2 (AMM), while that of water soluble carbohydrates averaged 9.0 (PM), 7.0 (AM), 9.5 (PMM), and 8.1 (AMM). Intake of N was lowest in the macerated hays reflecting hay composition. Fecal N excretion (% of N intake) was greater (P = 0.04) in macerated vs. non macerated hays. Steers fed PM-cut hays had reduced (% of N intake) excretions of urinary N (P = 0.08) and manure N (P = 0.03), and enhanced retained N (P = 0.03). Significant CT x MAC interactions were observed for manure N and retained N as % of N intake, showing that non macerated PM-cut hay had the lowest excretion of manure N and the greatest N retention. Maceration had no effect on N retention by cattle fed trefoil-grass hay.

Table 1. Effect of cutting time and maceration on N intake (g/d) and N balance (% of N intake)

	Treatments					P		
Item	PM	AM	PMM	AMM	SED	CT	MAC	CT x MAC
N intake	129	112	106	108	4.93	0.08	<0.01	0.04
Fecal N excretion	40	43	46	44	1.77	0.63	0.04	0.08
Urinary N excretion	32	37	33	35	2.66	0.08	0.70	0.47
Manure N excretion	72	81	78	79	2.32	0.03	0.24	0.05
Retained N	28	19	22	21	2.32	0.03	0.24	0.05

Key Words: maceration, cutting time, steers

T35 Temperature during summer transport of Canadian feeder cattle at high and low loading densities. C. Goldhawk*[1,2], E. Janzen[1], L. González[4], T. Crowe[3], J. Kastelic[2], E. Pajor[1], and K. Schwartzkopf-Genswein[2], [1]*University of Calgary*, *Calgary, Alberta, Canada*, [2]*Agriculture and AgriFood Canada*, *Lethbridge, Alberta, Canada*, [3]*University of Saskatchewan*, *Saskatoon, Saskatchewan, Canada*, [4]*University of Manitoba*, *Winnipeg, Manitoba, Canada*.

A recent survey of cattle transport in Canada found that despite traveling similar distances, feeder cattle have greater shrink and spend more time on truck than fat cattle. These results create concern about the conditions during transport for feeder cattle. Preliminary temperature results are available from a larger study evaluating the effects of loading density during feeder cattle transport (700–900 kg BW). The temperature in the belly (B) and top deck (TD) of 7 commercial loads were monitored over an 11 h journey. Loading density (H = 0.767 m^2/animal; L = 0.876 m^2/animal) was alternated between compartments within loads, yielding 3 replicates of HB, 4 LB, 4 HTD and 3 LTD. Twelve temperature loggers were placed throughout each compartment, 1 on each side mirror of the truck and 1 on the ear tags of 4 focal animals in each compartment. Ambient temperature ranged from 10 to 34°C in the am and 24–34°C in the pm. The average temperature at the ceiling of a compartment was 2.3°C higher than the ambient temperature. On average, temperatures at the animal level were 0.78°C higher than at the ceiling of the compartments during stationary periods and 1.07°C higher than the ceiling temperature during transit. During transit, temperatures at animal level ranged from 13.7 to 29.6°C in the HB treatment and from 8.3 to 29.5°C in the HTD treatment. Similarly, during transit, temperatures at animal level ranged from 10.5 to 29.8°C in LB and from 12.5 to 31.3°C in LTD. The highest temperatures at animal level were recorded during prolonged stationary periods of 1.5–3.5 h (border crossing). During the first 10 min of the stationary period, before unloading the cattle for inspection, compartment temperatures at animal level rose by 0.9°C in the B and 2.4°C in the TD. Upon reloading, compartment temperature at animal level peaked after 20 min at 26–32°C and stayed within this range for the remainder of the stationary time at the border. Given the concurrent stressors experienced by cattle during transportation, the range of temperatures recorded during these loads warrant further investigation to determine the relationship between trailer microclimate and cattle well-being.

Key Words: cattle, transportation