W378 Effects of feeding monensin or polyclonal antibody preparation against lactate–producing rumen bacteria on blood lipoprotein concentrations of feedlot cattle. J. R. Rochesel*[1,2], F. S. Parra[1], M. D. B. Arrigoni[1], C. L. Martins[1], S. R. Baldin[1], L. M. N. Sarti[1], R. S. Barducci[1], N. R. B. Consolo[3], D. D. Millen[1], R. D. L. Pacheco[1], D. Tomazella[1], A. L. Campanini[1], F. A. S. Miquilin[1], and A. M.Lopes[1], [1]*São Paulo State University (UNESP)*, *Botucatu, São Paulo, Brazil*, [2]*Supported by FAPESP*, *São Paulo, São Paulo, Brazil*, [3]*University of São Paulo (USP)*, *Pirassununga, São Paulo, Brazil*.

This study, conducted at the São Paulo State University feedlot, Botucatu Campus, Brazil, was designed to test the effects of feeding polyclonal antibody preparation (PAP) against lactate-producing rumen bacteria or monensin (MON) on blood lipoprotein concentration of feedlot cattle fed high-concentrate diets. Ninety-six 9-mo-old bullocks (285.9 ± 38.7 kg) were assigned to 24 pens (4 bullocks/pen) and used in a completely randomized design with a 2 x 2 factorial arrangement of treatments using repeated measures over time, replicated 6 times. Factors were inclusion or not of PAP or MON, at a dose of 300 mg•kg^{-1} of DM or at 30 mg•kg^{-1} of DM, respectively. Blood samples were collected from jugular vein of 48 animals (2 bullocks/pen) chosen randomly to evaluate the concentrations of cholesterol (CHL), triglycerides (TRG) and VLDL, LDL and HDL in each phase of feeding: adaptation (ADP), growing (GRO) and finishing (FNS). No significant ($P < 0.05$) PAP and MON main effects or interactions were observed for any of the variables measured. Nevertheless, it was observed ($P < 0.05$) a phase main effect for CHL, HDL, LDL, VLDL and TRG. Bullocks presented greater ($P < 0.05$) concentration of CHL in the GRO and FNS phases when compared to ADP phase (GRO=124.24, FNS=112.02 vs. ADP=68.97 mg•dL^{-1}). Likewise, greater ($P < 0.05$) concentration of HDL was found in the GRO and FNS phases (GRO=76.22, FNS=74.59 vs. ADP=37.13 mg•dL^{-1}). LDL concentration increased ($P < 0.05$) from ADP to GRO phase (27.54 vs. 52.34 mg•dL^{-1}); however, its concentration decreased ($P > 0.05$) in the FNS phase at similar concentrations (31.84 mg•dL^{-1}) as those in ADP phase. Furthermore, VLDL and TG concentrations decreased ($P < 0.05$) in the FNS phase. Concentration of HDL remained unaltered in FNS when compared to GRO phase, while VDLD and LDL concentrations were reduced. Thus, the feed additives tested had no effect on blood lipoproteins concentration; however the concentrations were altered by diet energy level. With respect to blood lipoproteins, feeding PAP may be eventually an alternative to substitute MON.

Key Words: blood, lipoproteins, feed additives

W379 Effects of feeding polyclonal antibody preparations against lactate–producing rumen bacteria or monensin on feeding behavior of feedlot cattle. T. M. Mariani[1,2], R. D. L. Pacheco[1], M. D. B. Arrigoni[1], C. L. Martins[1], S. R. Baldin[1], L. M. N. Sarti[1], R. S. Barducci[1], T. M. Mariani[1], J. R. Ronchesel[1], F. S. Parra[1], D. Tomazella[1], J. P. S. T. Bastos[1], E. S. Ogawa[1], and D. D. Millen*[1], [1]*São Paulo State University (UNESP)*, *Botucatu, São Paulo, Brazil*, [2]*Supported by FAPESP*, *São Paulo, São Paulo, Brazil*, [3]*University of São Paulo (USP)*, *Piracicaba, São Paulo, Brazil*.

This study was designed to test monensin (MON) and polyclonal antibody preparations (PAP) against lactate-producing rumen bacteria on feeding and rumination efficiencies of DM and NDF of Brangus (BR) and Nellore (NE) cattle. The experiment was designed as a 2 × 2 factorial arrangement using repeated measures over time, replicated 4 times (4 bullocks/pen), in which 32 9-mo-old bullocks (254.1 ± 12.7 kg) of each of two breeds (BD) evaluated were fed diets containing either MON at 30 mg•kg^{-1} of DM or PAP at 300 mg•kg^{-1} of DM for 144-d. Measures over time were taken according to the phases evaluated: adaptation (ADP), growing (GRO), finishing 1 (FN1) and finishing 2 (FN2). The level of concentrate fed in those phases was 55%, 70%, 80% and 85%, respectively. Visual appraisal was made every five minutes during 24-h, and the feeding behavior (eating and ruminating times) data collected in min was used to calculate the efficiencies. It was evaluated in min per kilo of DM and NDF the feeding efficiency of DM (FEDM) and NDF (FENDF) and rumination efficiency of DM (REDM) and NDF (RENDF). No significant ($P > 0.05$) feed additive (FA) main effects were observed for any of the efficiencies evaluated. However, it was observed a BD main effect ($P < 0.05$) for some variables, in which BR bullocks presented better FEDM (29.75 vs. 35.65 min•kg^{-1} of DM), REDM (52.07 vs. 62.92 min•kg^{-1} of DM) and RENDF (191.64 vs. 257.43 min•kg^{-1} of DM) when compared to NE cattle. In addition, it was found an interaction ($P < 0.05$) between BD and phases for FENDF, where BR bullocks were more efficient than NE bullocks only in the FN1 (86.79 vs. 141.41 min•kg^{-1} of DM) and FN2 (95.81 vs. 166.66 min•kg^{-1} of DM) phases. FEDM, REDM and RENDF got better ($P < 0.05$) from ADP to FN1 phase; however, bullocks were less efficient ($P < 0.05$) in FN2 when compared to FN1 phase. Bullocks fed PAP presented similar efficiencies when compared to those fed MON. Overall, BR cattle were more efficient than NE in terms of FEDM, REDM and RENDF, and for FENDF when diets contained levels of concentrate of 80% or more.

Key Words: efficiencies, feedlot, Zebu

W380 Effects of feeding polyclonal antibodies preparations against lactate–producing rumen bacteria or monensin on blood gas profile, DMI fluctuations and rumenitis incidence of feedlot cattle. R. D. L. Pacheco*[1,2], D. D. Millen[1], M. D. B. Arrigoni[1], C. L. Martins[1], S. R. Baldin[1,2], L. M. N. Sarti[1], R. S. Barducci[1], T. M. Mariani[1], J. R. Ronchesel[1], F. S. Parra[1], D. P. D. Lanna[3], J. P. S. T. Bastos[1], and G. B. Mourão[3], [1]*São Paulo State University (UNESP)*, *Botucatu, São Paulo, Brazil*, [2]*Supported by FAPESP*, *São Paulo, São Paulo, Brazil*, [3]*University of São Paulo (USP)*, *Piracicaba, São Paulo, Brazil*.

This study was designed to test monensin (MON) and polyclonal antibody preparations (PAP) against lactate-producing rumen bacteria on blood gas profile, DMI fluctuations (DMIF) and rumenitis (RUM) incidence of Brangus (BR) and Nellore (NE) cattle. The experiment was designed as a 2 × 2 factorial arrangement using repeated measures over time, replicated 6 times (4 bullocks/pen), in which 48 9-mo-old bullocks of each of two breeds (BD) evaluated were fed diets containing either MON at 30 mg•kg^{-1} of DM or PAP at 300 mg•kg^{-1} of DM for 112-d. Measures over time were taken according to the phase: adaptation (ADP), growing (GRO) and finishing (FNS). The DMIF was calculated as the difference in DMI between consecutive days on the first four days of GRO and FNS phases. At harvest RUM incidence was determined, on the entire washed rumen, using a scale of 0 (no lesions noted) to 10 (severe ulcerative RUM). A significant ($P < 0.01$) feed additives (FA) and BD main effects were found for bicarbonate (PAP = 28.35 vs. MON = 26.72 mmol•L^{-1}; BR = 28.10 vs. NE = 26.96 mmol•L^{-1}), total CO_2 (PAP = 29.67 vs. MON = 27.95 mmol•L^{-1}; BR = 29.38 vs. NE = 28.24 mmol•L^{-1}) and base excess in extracellular fluid (PAP = 4.16 vs. MON = 2.49 mmol•L^{-1}; BR = 3.89 vs. NE = 2.77 mmol•L^{-1}). Likewise, BR cattle and bullocks receiving PAP had ($P < 0.01$) higher blood pH in the ADP phase than NE (7.423 vs. 7.404) and bullocks fed MON (7.427 vs. 7.400), respectively. Bullocks receiving PAP showed greater ($P <$

0.01) DMIF in GRO phase than those fed MON (0.339 vs. 0.243 kg); however, was not observed ($P > 0.05$) any difference between FA in the FNS phase. No significant BD ($P > 0.05$) main effect was found for DMIF. Moreover, NE presented greater ($P < 0.05$) incidence of RUM than BR (2.60 vs. 1.26); on the other hand, no significant FA ($P > 0.05$) main effect was observed. Thus, feeding PAP may be eventually an alternative to MON to reduce the risk of acidosis, because even showing greater DMIF, it improved the blood gas profile without impacting negatively rumen wall epithelia in terms of RUM.

Key Words: feedlot, MON, PAP

W381 Effects of feeding polyclonal antibodies preparations against lactate–producing rumen bacteria or monensin on blood lipoproteins concentrations and fatty acid profile of feedlot cattle. D. D. Millen*[1,2], R. D. L. Pacheco[1], M. D. B. Arrigoni[1], C. L. Martins[1], S. R. Baldin[1], L. M. N. Sarti[1], R. S. Barducci[1], T. M. Mariani[1], J. R. Ronchesel[1], F. S. Parra[1], D. P. D. Lanna[3], J. P. S. T. Bastos[1], G. B. Mourão[3], and A. M. Lopes[1], [1]*São Paulo State University (UNESP)*, *Botucatu, São Paulo, Brazil*, [2]*Supported by FAPESP*, *São Paulo, São Paulo, Brazil*, [3]*University of São Paulo (USP)*, *Piracicaba, São Paulo, Brazil*.

This study was designed to test monensin (MON) and polyclonal antibody preparations (PAP) against lactate-producing rumen bacteria on blood lipoprotein concentrations (BL) and fatty acid profile (FAP) of Brangus (BR) and Nellore (NE) cattle. The experiment was designed as a 2 x 2 factorial arrangement, replicated 6 times (4 bullocks/pen), in which 48 9-mo-old bullocks of each of two breeds (BD) evaluated were fed diets containing either MON at 30 mg•kg^{-1} of DM or PAP at 300 mg•kg^{-1} of DM for 112-d. Before slaughter blood samples for BL analysis were collect from jugular vein. At harvest, samples from s.c. adipose tissue were collected for FAP analysis. No significant ($P > 0.05$) feed additives (FA) main effect was observed for cholesterol concentration in LM and for BL, with the exception of HDL ($P < 0.05$), where bullocks receiving PAP had greater concentrations than those fed MON (59.85 vs. 54.04 mg•dL^{-1}). With respect to BD, NE bullocks presented ($P < 0.01$) lower VLDL concentration. Regarding FAP, no significant ($P > 0.05$) FA and BD main effect was found, with the exception of trans–vaccenic acid, where bullocks receiving MON and BR cattle had greater ($P < 0.05$) concentrations than those fed PAP (2.40 vs. 1.77 g•100g^{-1}) and NE (2.44 vs. 1.73 g•100g^{-1}), respectively. However, it was found significant ($P < 0.05$) interaction between BD and FA for C14:0, C16:0, C18:1, C18:2, CLA, C18:3 n-3, SFA, MUFA, and PUFA. Despite greater ($P < 0.05$) concentration of SFA than NE fed MON, NE bullocks receiving PAP presented greater ($P < 0,05$) concentrations of some UFA including C18:2, C18:3 n-3, PUFA (1.85 vs. 1.61 g•100g^{-1}), and CLA (0.58 vs. 0.49 g•100g^{-1}). On the other hand, feeding MON led to greater ($P < 0.05$) concentrations of C18:1 and MUFA, and lower ($P < 0.05$) C14:0 and C16:0 than PAP in NE bullocks. No differences were detected ($P > 0.05$) between BR cattle fed either FA. Thus, feeding PAP may be an alternative to MON, as feeding PAP increased the concentration of some UFA beneficial to human health, what may have led to greater concentrations of HDL in blood.

Key Words: feedlot, HDL, fatty acid

W382 Economic analysis of beef steer finishing diets containing elevated levels of wet distillers grains with solubles. J. M. Carmack*[1], P. M. Walker[1], J. D. Fehr[1], R. L. Atkinson[2], and L. A. Forster[3], [1]*Department of Agriculture, Illinois State University*, *Normal,*[2]*Animal Science, Food and Nutrition, Southern Illinois University*, *Carbondale,* [3]*Archer Daniels Midland Co*, *Decatur, IL*.

With increased production of ethanol in the Midwest over the past several years, increased supplies of wet distillers grains with solubles (DGS) has created an opportunity to decrease feed costs through their inclusion in finishing diets. This study consisted of an economic analysis (as fed basis) of a feeding trial conducted at Illinois State University in which 140 Angus cross steers were fed diets containing 0, 25, 40 or 70% DGS (percent DM basis). The treatments were: 80 shelled corn/5 soybean meal/15 corn silage (CON), 25 DGS/60 shelled corn/15 corn silage (25 DGS), 40 DGS/45 shelled corn/15 corn silage (40 DGS) and 70 DGS/15 shelled corn/15 corn silage (70 DGS). Seventy head were harvested on d 165 when 90% were estimated to have reached low choice or higher quality grade. The remaining 70 head were harvested on d 200 when 90% were estimated to have reached low choice or higher quality grade. Cost of feedstuffs, expressed as cents/kg were: 2.81:kg shelled corn, 7.54:kg soybean meal, 1.22:kg DGS, 0.59 corn silage, 8.86:kg trace mineralized salt, 4.13:kg limestone and 1.13/hd/d Rumensin/B1 premix. Average $:cwt of carcass was different ($P < 0.05$) with CON = 25DGS = 40DGS > 70DGS. Gross return:steer was lower ($P = 0.01$) for 70 DGS compared to the other treatments with no differences between CON, 25 DGS and 40 DGS diets. Differences were observed ($P < 0.05$) for total cost of feed:steer to harvest with CON > 25DGS > 40DGS > 70DGS. Gross dollar return over feed cost:steer was different ($P = 0.01$) as follows: 25 DGS = 40DGS > 70DGS > CON. Diets containing either 25 or 40% DGS (DM basis) returned more gross dollars over feed cost. Based on the analysis of this study, diets containing higher levels of DGS can return more dollars over feed cost.

Key Words: finishing diets, distillers grains, economic analysis

W383 Interactive effects of yeast and yeast cell wall material on feedlot performance during the receiving period of stressed beef cattle. D. N. Finck*[1], S. L. Parr[1], T. R. Young[1], J. A. Carroll[2], J. R. Corley[3], A. G. Estefan[3], and B. J. Johnson[1], [1]*Texas Tech University, Dept. of Animal and Food Sciences*, *Lubbock,* [2]*USDA-ARS, Livestock Issues Research Unit*, *Lubbock, TX,* [3]*Lesaffre Feed Additives*, *Milwaukee, WI*.

The objectives of this experiment were to determine the effect of live yeast and yeast cell wall supplements on performance and health of cattle during the receiving period. Newly-weaned crossbred steers (n = 184; 9 pens/treatment; initial BW = 203 kg) were blocked by BW and randomly assigned to pen (4 pens/block; 5 or 6 hd/pen). Pens within a block were randomly assigned to one of four treatments: 1) control (CON; no yeast additive), 2) live yeast (LY; 5 g•hd^{-1}•d^{-1} live yeast product), 3) yeast cell wall (YCW; 5 g•hd^{-1}•d^{-1} yeast cell wall product), 4) live yeast + yeast cell wall (LY+YCW; 5 g•hd^{-1}•d^{-1} live yeast and 5 g•hd^{-1}•d^{-1} yeast cell wall). A randomized complete block design was used; data were analyzed either as 4 separate treatments, or treatments 2 and 3 were combined to analyze the overall effect of yeast product inclusion level (0, 5, and 10 g inclusion). Daily DMI was recorded and individual BW were collected every 14 d for the 56 d feeding period. Steers receiving 5 g of LY or YCW showed a 7% numerical increase in ADG and a 7.7 kg increase in BW at d 56. Cumulative DMI was increased ($P < 0.05$) for the LY, YCW, and LY+YCW compared to CON (5.47, 6.02, 5.96, and 5.89 kg/d, respectively). Interim DMI differed for d 0 to 28 (5.03, 5.59, and 5.42 kg/d for 0, 5, or 10 g LY or YCW, respectively; $P = 0.02$, quadratic), d 0 to 42 (5.17, 5.75, and 5.62 kg/d; $P = 0.02$), and cumulative (5.46, 5.99, and 5.88 kg/d; $P = 0.03$). Steer morbidity and mortality were not affected by LY or YCW supplementation ($P > 0.10$). Collectively, these data indicated that the use of LY or YCW additives increase total

feed consumed by the steers during the first 56 d of the feeding period, which contributed to a trend for increased growth rate.

Key Words: receiving, steers, yeast

W384 Condensed tannins supplementation on feedlot performance of growing bulls. R. Barajas*[1], B. J. Cervantes1,2, A. Camacho[1], E. A. Velazquez[1], M. A. Espino[1,3], F. Juarez[1], L. R. Flores[1], and M. Verdugo[1], [1]*FMVZ-Universidad Autonoma de Sinaloa*, *Culiacan, Sinaloa, Mexico*, [2]*Ganadera Los Migueles SA de CV*, *Culiacan, Sinaloa, Mexico*, [3]*Técnología de Máxima Producción, S.A. de C.V.*, *Culiacan, Sinaloa, Mexico*.

This study was conducted to determine the influence of condensed tannins on feedlot performance of growing bulls. An 84-days feedlot experiment involving sixty bull-calves 183.94 ± 1.2 kg was performed. Animals were blocked by starting weight and in groups of five placed in ground flour pen (2 × 12 m). The experiment was conducted as a randomized complete block design. Treatments were: 1) Feedlot diets without additional tannins containing 0.56% of additional urea (CTRL); 2) Diets with 0.56% additional urea, added with equivalent of 0.20% of condensed tannins (TAN); and 3) Diets with 1.12% additional urea and 5% less canola meal than CTRL diets, and added with equivalent of 0.20% of condensed tannins (TAN-U). Supplementary condensed tannins were provided in form of an extract of condensed tannins from quebracho trees (SilvaFeed ByPRO; Indunor, S.A., Buenos Aires, Argentina). Both diets containing tannins increased ($P < 0.01$) ending weight, and average daily gain respect to bull-calves fed the unsupplemented CTRL diets. The ADG of TAN and TAN+U treatments were 14.8% and 12.6% higher ($P = 0.05$) than control, respectively. DMI was not affected by treatments ($P > 0.15$). Feed/gain ratio was enhanced ($P = 0.08$) by the two tannins contained treatments. TAN treatment reduced ($P < 0.01$) in 18.5% blood urea nitrogen in relationship to CTRL, while BUN values in TAN+U were similar ($P > 0.10$) to CTRL bull-calves. It is concluded, that supplementation with 0.2% of condensed tannins of quebracho trees improves feedlot performance of growing bull.

Key Words: condensed tannins, bulls, feedlot performance

W385 Factors influencing intake: Diet composition and carcass characteristics in finishing yearling steers. M. G. Dib*[1], G. E. Erickson[1], T. J. Klopfenstein[1], and M. L. Spangler[1], [1]*University of Nebraska*, *Lincoln,* [2]*Archer Daniels Midland*, *Columbus, NE*.

The effects of dietary components and carcass characteristics on average daily DMI were investigated using 930 individually fed yearling steers representing 13 experiments using a Calan gate system. Dietary treatments considered in the current study included the percentage of corn, either dry or high moisture (DRC_HMC), byproducts, and forage in the diets. Carcass and performance traits evaluated were 12th rib fat thickness (FAT), marbling score (MARB), calculated USDA Yield Grade (YG), HCW, and ADG. Pearson correlations between DMI and FAT, MARB, YG, HCW, and ADG were 0.16, 0.10, 0.15, 0.48, and 0.50, respectively, and were significant at the 0.05 level. The Mixed procedure of SAS was used to obtain coefficients for the regression of DMI on each carcass trait individually fitting experiment as a random variable. Estimated regression coefficients for FAT, YG, MARB, and HCW were 107.2 mm ±13.5, 1.15 calculated USDA YG ± 0.12, 0.003 marbling score unit±0.0009 and 0.01 kg±0.0004 respectively. The Mixed procedure of SAS was used to obtain regression coefficients for varying levels of the two dietary treatments. The most appropriate model included experiment as a random effect and the nested effect of forage within level of DRC_HMC. The inclusion rate of byproducts was not fit in the model but accounted for the balance of the diets. Nested effects were necessary in the current study given the inability to uncouple differing dietary treatments across experiments. Significant estimates were 0.89 (SE±0.45), 1.86 (SE±0.48), 2.06 (SE±0.48), 1.07 (SE±0.48), 0.61 (SE±0.29), 1.06 (SE±0.38), 0.99 (SE±0.35), 0.70 (SE±0.33) and 1.83 (SE±0.46) for 60:5 (corn:forage), 66:5, 76:5, 65:7, 0:7.5, 52.5:7.5, 67.5:7.5, 82.5:7.5 and 83.5:7.5, respectively ($P < 0.05$). The model accounted for 30% of the variation in DMI. Results show a positive and moderate correlation between DMI and both HCW and ADG and weak relationships with carcass characteristics.

Key Words: carcass traits, dry matter intake, feedlot cattle

W386 Effect of increased Rumensin dosage level and timing on performance of steers fed in confinement to harvest. G. J. Vogel*, *Elanco Animal Health*, *Greenfield, IN*.

One-thousand nine-hundred eleven crossbred steers (357 kg) were randomly allotted to 18 pens in a randomized complete block design of 3 treatments with 6 replications to evaluate the effects of an elevated level of Rumensin. Experimental treatments included: 1) Rumensin fed at 36.4 mg/kg of the diet, (R); 2) Rumensin fed at 48.5 mg/kg of the diet, (HR); and 3) Rumensin fed at 36.4 mg/kg of the diet before reimplant and then at 48.5 mg/kg of the diet post reimplant, (R-HR). All treatments were fed Tylan at 9.5 mg/kg of the diet. Reimplanting occurred on d 65 of the 151 d long study. A 2 ration step-up program was used to adapt steers to the final diet by d 22. Steers were fed 3 times daily. The final diet was formulated to contain 1.65 Mcal NEg/kg, 13.2% CP, 20.9% NDF, 7.9% EE, 0.72% Ca and 0.52% P. Performance parameters were analyzed using PROC MIXED with treatment as fixed effects and block as random effects. HR resulted in an improvement ($P < 0.02$) in feed to gain of 3.8 and 3.2%, respectively, over R and R-HR. Feed intake was not affected by feeding the elevated level of Rumensin. Carcass traits were not affected by treatment. These data indicate that feeding elevated levels of Rumensin for the entire finishing period enhance animal performance.

Table 1. Effect of increased Rumensin dosage

	Treatments				
	R	HR	R-HR	SEM	P
Final BW, kg	595.3	600.8	596.6	4.5	0.66
DM Intake, kg	9.49	9.41	9.49	0.11	0.70
Daily Gain, kg/d	1.58	1.63	1.59	0.03	0.17
Feed / Gain	6.01[a]	5.78[b]	5.97[a]	0.04	0.02

[ab]Means with different superscripts differ ($P < 0.05$).

Key Words: Rumensin, monensin level, cattle

W387 Blood gas profile, rumenites and liver abscesses incidences of feedlot bullocks fed high-concentrate diets containing monensin or polyclonal antibodies preparations against lactate-producing rumen bacteria. L. M. N. Sarti*[1,2], R. S. Barducci[1], M. D. B. Arrigoni[1], C. L. Martins[1], S. R. Baldin[1], D. D. Millen[1], R. D. L. Pacheco[1], T. M. Mariani[1], J. R. Ronchesel[1], F. S. Parra[1], A. L. Campanini[1], J. P. S. T. Bastos[1], D. Tomazella[1], and F. A. S. Miquilin[1], [1]*São Paulo State University (UNESP)*, *Botucatu, São Paulo, Brazil*, [2]*Supported by FAPESP*, *São Paulo, São Paulo, Brazil*.

This study was designed to test the effects of polyclonal antibody preparation (PAP) against lactate-producing rumen bacteria or mon-

ensin (MON) on blood gas profile (BGP), rumenites (RUM) and liver abscesses (LVA) incidences of feedlot bullocks fed high concentrate diets. Nine-mo-old Brangus (BR) bullocks (n=72) (261.04 ± 34.73 kg) were assigned to 24 pens (3 bullocks/pen) and used in a completely randomized design with 2 × 2 factorial arrangement of treatments using repeated measures over time, replicated 6 times. Factors were inclusion or not of PAP or MON, at a dose of 300 mg/kg DM or at 30 mg/kg DM, respectively. Measures over time were taken according to the phase: adaptation (ADP), growing (GRO) and finishing (FNS). Blood samples were collected from jugular vein of 48 animals (2 bullocks/pen) chosen randomly. At harvest RUM incidence was determined, on the entire washed rumen, using a scale of 0 (no lesions noted) to 10 (severe ulcerative RUM). No significant ($P > 0.05$) PAP or MON main effects were observed for RUM. On the other hand, feeding PAP reduced ($P < 0.01$) the LVA (5.56% vs. 19.44%), but no significant ($P > 0.05$) MON main effect was found (13.89% vs. 11.11%). No significant ($P > 0.05$) MON main effect was observed for any of the BGP variables; however, a significant ($P < 0.01$) PAP main effect was found, in which bullocks receiving PAP presented lower concentrations of bicarbonate (BICARB; 25.83 vs. 27.35 mmol/L), base excess in blood (BEB) and in the extracellular fluid (BEECF) than cattle fed no PAP. A significant ($P < 0.01$) interaction between PAP and MON was observed, in which bullocks receiving both feed additives presented lower blood pH than bullocks fed either PAP or MON (7.38 vs. 7.42 and 7.43, respectively). The phase affected ($P < 0.01$) the concentrations of BICARB, BEB and BEECF, where greater concentrations were observed in the GRO phase, followed by ADP phase, which had greater concentrations than FNS phase. Thus, even reducing the LVA, feeding PAP reduced the buffering capacity of the blood.

Key Words: blood, MON, PAP

W388 Effect of intermittent roughage delivery and roughage type on intake and digestibility by beef steers fed concentrate diets. A. Lopez[1], J. I. Arroquy*[1,2], M. Avila[2], H. Coria[3], and O. Hernandez[3], [1]*CONICET*, *Santiago del Estero, Argentina*, [2]*INTA EEA Santiago del Estero*, *Santiago del Estero, Argentina*, [3]*FAyA - Univ. Nac. Santiago del Estero*, *Santiago del Estero, Argentina*.

The objective of the trial was to evaluate the effect of three roughage delivery systems and two roughage sources on dry matter intake and digestibility by beef steers. Six ruminally fistulated beef steers (BW = 287 ± 35 kg) were used in a six treatments by four periods (6 × 4) trial. Treatment structure was 2 × 3 factorial. First factor was roughage delivery in a total mixed ration (TMR) or the same proportion of ingredients but forage offered once every 3-d (FE3D) or 6-d (FE6D) separated of the concentrate. The second factor consisted of two forages in the ration: middle-quality alfalfa hay (AH) vs. cotton plant byproducts (CPB). Roughage source was incorporated in the diet at 11% and 7% in DM basis to AH and CPB, respectively. There were not roughage delivery system × roughage source interaction for total (TDMI), concentrate (CDMI), and roughage (RDMI) DM intake, as well as total tract DM digestion (DMD) and total digestible DM intake (TDDMI). Roughage delivery system did not affect TDMI (73.6, 90.7, and 85.2 [SEM = 13.9] g/ kg BW0.75 for TMR, FE3D, and FE6D respectively), CDMI (67.0, 82.2, and 74.5 [SEM = 14.4] g/kg BW0.75 for TMR, FE3D, and FE6D respectively), RDMI (6.6, 6.9, and 6.4 g/kg BW0.75 [SEM = 1.1] for TMR, FE3D, and FE6D respectively), TDDMI (51.7, 69.7, and 62.1 g/kg BW0.75 [SEM = 8.7] for TMR, FE3D, and FE6D respectively) and DMD (696.5, 768.4 vs. 729.2 g/kg BW0.75 [SEM = 22.5] for TMR, FE3D, and FE6D respectively). Forage source affected RDMI ($P < 0.01$; 8.8 vs. 4.5 g/ kg BW0.75 [SEM = 0.8]). Whereas TDMI (85.7 vs. 80.6 [SEM = 8.5] g/ kg BW0.75 for AH and CPB respectively), CDMI (76.9 vs. 72.2 [SEM = 8.8] g/kg BW0.75 for AH and CPB respectively), TDDMI (62.9 vs. 59.4 g/kg BW0.75 [SEM = 5.5] for AH and CPB respectively) and DMD (730.9 vs. 731.7 g/kg BW0.75 [SEM = 18.4] for AH and CPB respectively) were similar among roughage sources. According to our experiment it is concluded that roughage portion of a finishing ration might be supplied in a discontinuous way without any effect on DM intake and digestibility utilizing either a middle-quality or low-quality roughage source.

Key Words: roughage delivery, finishing diet, digestibility

W389 Effect of wheat straw level and processing method on site and extent of digestion by cattle consuming finishing feedlot diets. J. A. Valdez*[1], J. O. Chirino[1], M. F. Montaño[1], N. G. Torrentera[1], E. G. Alvarez[1], J. F. Calderón[1], O. M. Manriquez[1], M. A. Lopez[1], V. M. Gonzalez[1], A. Perez[1], J. Salinas[2], and S. A. Soto-Navarro[3], [1]*Universidad Autónoma de Baja California*, *Mexicali, BC, MX*, [2]*Universidad Autónoma de Tamaulipas*, *Victoria, TAM, MX*, [3]*New Mexico State University*, *Las Cruces*.

Holstein steers (n = 4; 216 kg BW), fitted with cannulas in the rumen and proximal duodenum, were used to evaluate wheat straw inclusion level (7 and 14%; DM basis) and roughage processing method (ground vs. pellet) on characteristics of digestion of steam-flaked corn finishing diets. The experimental design was a 4 × 4 Latin square with a 2 × 2 factorial arrangement of treatments. Wheat straw was ground in a tub grinder with a 3.81 cm screen, while the pellet dimensions were 2 cm long × 0.5 cm diameter. An interaction was detected between straw level and processing method for DM intake ($P < 0.01$). With 14% straw, processing method did not affect ($P = 0.83$) DM intake. With 7% straw, DM intake was lower (2.3%, $P < 0.01$) for pelleted straw than for ground. Digestibility of ruminal OM (6%), true ruminal N digestibility (9.7%), total tract OM (3.9%), and total tract N (4.2%)were greater ($P \leq 0.05$) for diets that contained 7% wheat straw than for those that contained 14%. Ruminal starch digestibility (88.7, and 84.9 ± 0.74%, for pelleted and ground, respectively) was greater ($P = 0.04$) and ruminal pH (5.44, and 5.76 ± 0.22, for pelleted and ground, respectively) was lower ($P = 0.05$) for diets that contained pelleted straw than for those that contained ground straw. Steers fed 7% wheat straw had greater OM and N digestibility. The greater ruminal starch digestibility and lower pH of steers consuming pelleted wheat straw might be responsible for the lower DM intake observed for steers consuming pelleted wheat straw at 7%. Wheat straw is a viable roughage source for feedlot diets. However, when included at low levels, the pelleted form does not elicit the optimum rumen function stimulation.

Key Words: digestion, processing, wheat straw