

Ruminant Nutrition: Beef 2

1029 Characterization of physical factors affecting ruminal lipolytic activity *in vitro*. H. D. Edwards^{*1}, M. D. Hardin¹, R. K. Miller¹, N. A. Krueger², R. C. Anderson², and D. J. Nisbet², ¹Texas A&M University, College Station, ²USDA/ARS, Southern Plains Agriculture Research Center, Food and Feed Safety Research Unit, College Station, TX.

Hydrolysis of dietary lipids to free fatty acids (FFA) is a prerequisite for ruminal biohydrogenation, a bacterial mediated process that rapidly and extensively saturates unsaturated FFA thus limiting the absorption and ultimate assimilation of these healthy nutrients into ruminant produced foods. To learn how to better enrich, isolate and study lipolytic bacteria from the rumen, we investigated the effects of various physical treatments on ruminal lipase activity of ruminal microbes (in 1 mL freshly collected ruminal fluid) during cultivation in 9 mL anaerobic salts medium containing 10% clarified ruminal fluid and 1% olive oil. We found that mean \pm SD (n = 3) rates of FFA production ($\mu\text{mol mL}^{-1} \text{h}^{-1}$) were enhanced ($P < 0.05$) more than 20-fold when ruminal populations were incubated (48 h) in the presence of glass beads (0.22 ± 0.10 versus 0.01 ± 0.01 for cultures incubated with or without glass beads, respectively). Rates of lipolysis, however, were unaffected ($P > 0.05$) whether cultures were incubated with or without added H_2 (50% in CO_2). In a subsequent experiment, we found that rates of FFA accumulation by mixed populations of rumen bacteria incubated with glass beads as described above were more rapid ($P < 0.05$) when cultures were incubated horizontally than when incubated upright (0.62 ± 0.06 versus $0.31 \pm 0.16 \mu\text{mol mL}^{-1} \text{h}^{-1}$, respectively). When fluid fractions (10% vol/vol) from these initial cultures were transferred and incubated similarly in fresh culture medium, rates of FFA accumulation decreased by more than 24% compared with rates measured during the initial culture series. Conversely, when bead fractions were transferred to a subsequent culture series, rates of FFA accumulation increased more than 83% from those measured in the initial series. Results indicate that inclusion of glass beads to culture media provides an effective solid support matrix to promote both interfacial activation of lipase activity and colonization by lipase producing bacteria.

Key Words: rumen, lipolysis, food quality

1030 Potential for water intake to predict dry matter intake in finishing beef steers. M. H. Ramos^{*1}, M. S. Kerley¹, M. Brankovic², J. Gillespie², and C. Huisma², ¹University of Missouri, Columbia, ²GrowSafe, Airdrie, CA.

Potential to predict individual dry matter intake (DMI) with accuracy would have production, selection and research application. Present equations cannot explain more than approximately two-thirds of variation of DMI. Correlation between DMI and water intake is known to be positive and relatively strong. The objective of this research was to determine the correlation between water intake and DMI by feedlot cattle. Cattle (n = 164 and metabolic body weight = 100 kg) were fed for 120 d a diet containing 59% barley, 10% brewer's grains, 8% DDGs, 19% silage and 4% supplement. Diet had a CP value of 15% and NEg of 1.36 Mcal/Kg. Water intake and DMI were both individually measured using GrowSafe intake system and GrowSafe Beef in pen weighing system. The equation used was: $\text{dmi} = 36.1674 + 2.1624\text{waterintake} - 0.2072\text{waterbodycomposition} - 17.6386\text{adg} - 2.1292\text{waterintakead-juster}$ ($R^2 = 0.84$; $\text{CV} = 3.59$; $\text{RootMSE} = 0.42$). Regression was done using PROC REG (SAS) with DMI as a dependent variable and wati, watcomp, adg and watdelta as independent variables. The PROC REG was used with backward and forward selection with a $P = 0.15$ used to

identify parameters to stay in the model. Also PROC REG was used to identify the lowest AIC "an information criteria" and all variables were used. The equation developed had an $R^2 = 0.84$ compared with actual DMI. Intake equation using effective energy equation had a $R^2 = 0.40$ and NRC (1996) had a $R^2 = 0.44$, with NRC equation underpredicting DMI. Water intake was correlated to DMI and improved accuracy of DMI prediction.

Key Words: DMI, water, intake

1031 Effect of calving season and finishing system on performance of beef steers in western Canada. H. C. Block¹, A. D. Iwaasa², L. C. Thompson³, H. A. Lardner^{*3}, and S. L. Scott¹, ¹Agriculture and Agri-Food Canada, Brandon Research Centre, Brandon, MB, Canada, ²Agriculture and Agri-Food Canada, Semiarid Prairie Agricultural Research Centre, Swift Current, SK, Canada, ³Western Beef Development Centre, Lanigan, SK, Canada.

Steers (n = 124) from a 3-site Canadian study of effects of calving season [CS; early (EC; March) vs. late (LC; June)] on cow-calf production were allocated to 2 finishing systems [FS; rapid (RF) vs. slow (SF)]; with 2 pens of 13–17 steers per treatment. Effects of CS, FS, and their interaction on performance and carcass characteristics were evaluated. The RF was an 84-d backgrounding period followed by a high-barley grain finishing diet. The SF used more forage with longer backgrounding, pasture in June and July, and swath-grazing in August and September, followed by a high-grain finishing diet. The endpoint was 8 mm ultrasound backfat or 750 kg bodyweight (BW). Data were analyzed as a 2×2 factorial. The initial BW of EC steers was 18.2 kg heavier ($P < 0.01$). There were CS \times FS interactions ($P \leq 0.01$) for time on feed, age at slaughter, DMI, ADG, total gain (TG), and final BW. Compared with ECRF, LCRF steers were on feed 21% longer, were 18% older at slaughter, consumed 38% more total DM, and had 19% higher ADG, 48% higher TG, and 19% heavier final BW (all $P \leq 0.05$). The ECSF steers were on feed 117% longer, were 60% older at slaughter, consumed 202% more total DM, and had 17% lower ADG, 83% higher TG, and 39% heavier final BW (all $P \leq 0.05$). The LCSF steers were on feed 81% longer, were 46% older at slaughter, consumed 160% more total DM, and had 8% lower ADG, 67% higher TG, and 29% heavier final BW (all $P \leq 0.05$). Feed efficiency (G:F) was 65% better for RF steers ($P < 0.01$) and 5% better for LC steers ($P < 0.01$). Yield grade was unaffected ($P = 0.23$ to 0.77). There was a reduction ($P = 0.04$) in AA quality grades with SF. The expected effect of the high-forage SF on slowing growth and increasing total DM, age, and final BW, and lowering G:F, was amplified for EC and attenuated for LC steers, indicating CS impacts selection of optimal FS.

Key Words: beef steers, calving season, finishing system

1032 Effects of a bacterial inoculant on fermentation of barley or corn silage and on the growth performance of steers fed the ensiled crop. W. Addah^{*1,2}, J. Baah², P. Groenewegen³, E. K. Okine¹, and T. A. McAllister², ¹University of Alberta, Edmonton, AB, Canada, ²Agriculture and Agri-Food Canada Research Centre, Lethbridge, AB, Canada, ³Alltech Canada, Inc., Calgary, AB, Canada.

Barley and corn silages are principal components of backgrounding diets in North America. Responses of these forages to inoculants designed to enhance the ensiling process may differ, owing to differences in forage composition. Whole-crop barley (*Hordeum vulgare*) and corn (*Zea mays*)

were inoculated with a mixture of *Lactobacillus plantarum*, *Enterococcus faecium* and *Pediococcus acidilactici* to assess their impact on silage fermentation and growth performance of feedlot steers. Barley (B; 45% DM) and corn (C; 35% DM) forages were swathed, chopped (0.95 mm) and sprayed with water (control: CB, CC) or inoculant (inoculated: IB, IC) at a rate of 1.0×10^5 cfu/g DM. The forages were ensiled in laboratory-scale silos for fermentation analysis and in large silage bags that were opened after 63 (C) or 77 d (B). The bagged silages were used in backgrounding diets fed to steers ($n = 25$) for 84 d. Data were analyzed by the mixed procedure of SAS for main effects of inoculation, silage type, and their interaction. Terminal pH was lower ($P < 0.001$) in corn than in barley silage, and in inoculated silages compared with controls. Water soluble carbohydrate, propionic and acetic acid contents were lower in IB than in CB (38.2 vs. 60.2, 2.03 vs. 2.50, and 10.1 vs. 14.1 g/kg DM, respectively; $P \leq 0.037$) and lactic acid was higher (85.7 vs. 52.7 g/kg DM; $P = 0.001$), but these variables did not differ between IC and CC. Despite corn silage having lower pH, more acetic acid and more lactic acid-producing bacteria compared with barley silage ($P \leq 0.036$), its $\text{NH}_3\text{-N}$ content was higher ($P = 0.001$). Yeasts were detected (4.44 \log_{10} cfu/g DM) in corn silage but not in barley ($< 1 \log_{10}$ cfu/g DM). Inoculation did not affect ($P \geq 0.236$) DMI or growth performance of steers, but steers fed barley silage had greater DMI ($P = 0.038$), ADG ($P = 0.002$) and feed conversion efficiency ($P < 0.001$) than those fed corn silage. In this study inoculant improved fermentation of barley, but not corn, during ensiling, but had no impact on animal performance during backgrounding.

Key Words: barley, corn, silage inoculant

1033 Interactions between animal age and media fatty acids on subcutaneous and intramuscular adipose tissue explants from Angus steers. D. T. Silvey¹, G. Go¹, L. A. Gilmore¹, S. B. Smith¹, B. J. Johnson³, and M. Doumit², ¹Intercollegiate Faculty of Nutrition, Texas A&M University, College Station, ²University of Idaho, Moscow, ³Department of Food and Animal Science, Texas Tech University, Lubbock.

Pasture feeding depresses adipose tissue development in beef cattle. Therefore, we hypothesized that specific fatty acids would differentially depress lipogenesis in explants of bovine subcutaneous (s.c.) and intramuscular adipose (i.m.) tissues. Angus steers were harvested at 12, 14, and 16 mo of age and i.m. and s.c. adipose tissue explants from the 5-8th thoracic rib region were dissected and cultured in media. In both depots, two concentrations (0 μM and 40 μM) of five fatty acids, stearic acid (18:0), oleic acid (18:1 n-9), *trans*-vaccenic acid (18:1 *trans*-11), conjugated linoleic acid (CLA, 18:2 *trans*-10, *cis*-12), and α -linolenic acid (18:3 n-3) were added to the media. After 48 h of culture, lipogenesis using [^{14}C]glucose and [^{14}C]acetate was measured. Lipogenesis from glucose decreased between 12 and 16 mo of age in s.c. adipose tissue (from 8.9 to 4.0 nmol per 2 h per 100 mg; $P = 0.001$) and i.m. adipose tissue (from 4.4 to 2.7 nmol per 2 h 100 mg; $P = 0.08$). Lipogenesis from acetate did not change over time in s.c. adipose (approximately 56 nmol per 2 h 100 mg; $P = 0.23$), but increased over time in i.m. adipose tissue (from 11.3 to 17.1 nmol per 2 h 100 mg; $P = 0.02$). *Trans*-vaccenic acid increased lipid synthesis from glucose 81% ($P = 0.05$), CLA, 18:2 *trans*-10, *cis*-12 61% ($P = 0.02$), and α -linolenic acid 84% ($P = 0.02$) in s.c. adipose tissue. Stearic acid decreased lipid synthesis from glucose by 61% ($P = 0.03$) in i.m. adipose tissue. In s.c. adipose tissue only, stearic acid increased lipogenesis from acetate by 250% ($P = 0.03$). We conclude that fatty acids differentially affect lipid synthesis in i.m. and s.c. adipose tissues, which may account for the affects of pasture and grain feeding on adiposity.

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Key Words: CLA, beef, adipose

1034 Characterization of feed efficiency traits and relationships with serum metabolites, cortisol and IGF-I in growing Brangus heifers. R. R. Gomez*, G. E. Carstens, T. H. Welsh Jr., P. A. Lancaster, L. J. Slay, and W. K. Krueger, Texas A&M University, College Station.

Physiological indicator traits that are biologically associated with residual feed intake (RFI) may be useful indicator traits. The objective of this study was to examine the relationships between RFI, and temperament and serum metabolites and hormones in growing heifers. A 4 yr study ($n = 114\text{--}119$ heifers/yr) was conducted with Brangus heifers (Initial BW = 273 ± 28 kg) that were weaned for 26 ± 9 d before being adapted to a high roughage diet (ME = 2.0 Mcal/kg DM) diet. Individual DMI were measured using Calan gate feeders and BW measured at 7-d intervals during the 70-d studies. RFI was calculated as the residual from the linear regression of DMI on mid-test BW^{0.75} and ADG. On d 0 of the studies, blood samples were collected and exit velocity (EV; rate of distance traveled on exiting a chute) measured. Serum samples were assayed for complete blood counts (WBC, RBC, hemoglobin, Hb), metabolites (glucose, albumin, creatine, blood urea nitrogen, BUN; β -hydroxybutyrate, BHB) and hormones (cortisol, insulin-like growth hormone I, IGF-I). Across all heifers, RFI was positively correlated with DMI (0.67) and F:G (0.52), but not with ADG or initial BW. Heifers with low RFI (< 0.5 SD from mean RFI) consumed 14% less DMI and had 11% lower F:G than heifers with high RFI (> 0.50 SD from mean RFI). EV was positively correlated ($P < 0.05$) with cortisol (0.24) and negatively correlated ($P < 0.05$) with DMI (-0.15), but was not correlated with RFI or F:G. RFI was weakly correlated ($P < 0.05$) multiple serum parameters including WBC (0.18), Hb (-0.11), total protein (-0.12), albumin (-0.10), creatinine (-0.13) and β -hydroxybutyrate (0.14). These same serum parameters, with the exception of Hb (0.16, -0.26), were not significantly correlated with F:G or ADG. Serum cortisol and IGF-I were not correlated with either RFI or F:G. These results suggest that the serum metabolites and hormones evaluated in this study have limited utility as indicator traits for RFI in growing heifers.

Key Words: feed efficiency, cortisol, beta-hydroxybutyrate

1035 Effects of source and level of dietary roughage and ractopamine (Optaflexx) supplementation on growth performance, carcass traits, and beef quality. D. Glanc*, K. Swanson, C. Campbell, and I. Mandell, University of Guelph, Guelph, Ontario, Canada.

A high moisture corn/SBM based finishing ration was used to examine the effects of roughage source (corn silage, alfalfa hay), level of dietary roughage (8, 16, 24%), and ractopamine supplementation (none, Optaflexx) on growth performance, carcass traits, and beef quality for finishing 108 steers and 24 heifers (initial BW = 308 kg). Cattle were allocated by gender to 12 management regimen subclasses. Optaflexx was fed over the last 28 d on feed with cattle marketed after a common time on feed. Growth performance data were recorded (ADG, feed intake for individual cattle, and feed efficiency). Carcass measurements were recorded at a commercial packing plant with a primal rib and semi-tendinosus (ST) muscle from each animal processed at the University of Guelph Meat Laboratory for carcass and meat quality evaluations. Tenderness was determined using shear force assessment of product aged 7, 14, and 21 d. Treatment did not influence ($P > 0.37$) ADG with gains ranging from 1.73 to 1.79 kg/d across all main effects. While hot carcass weights (HCW) were not affected ($P > 0.49$) by roughage

source or use of Optaflexx, HCW were greater ($P < 0.01$) feeding the 8 vs. 16 and 24% roughage diets. Body composition was determined via rib dissection with no differences ($P > 0.11$) in % lean, fat, and bone across source and level of dietary roughage and use of Optaflexx. Source and level of dietary roughage and inclusion of Optaflexx did not affect color ($P > 0.41$) or shear force ($P > 0.20$) values for longissimus (LM) and ST steaks. However, hay diets tended to increase pH ($P > 0.01$) in LM steaks, but had no effect ($P > 0.41$) on ST steaks. Inclusion of up to 24% roughage in finishing diets may not negatively impact gains, carcass characteristics or beef quality; however, feeding 8% roughage in the diet increased HCW. Source of dietary roughage and supplementation of Optaflexx over the last 28 d on feed had minimal effects on gains, body composition, and meat quality.

Key Words: ractopamine, roughage level, shear force

1036 Natural and conventional diet and management effects on steer feedlot performance, carcass traits and economics¹. M. M. Thompson*¹, C. S. Schauer¹, V. L. Anderson², B. R. Ilse², R. J. Maddock³, and K. K. Karges⁴, ¹Hettinger Research Extension Center, North Dakota State University, Hettinger, ²Carrington Research Extension Center, North Dakota State University, Carrington, ³Department of Animal Sciences, North Dakota State University, Fargo, ⁴Poet Nutrition, Inc., Sioux Falls, SD.

Seventy-six naturally raised Angus-cross steers were used to determine the effects of natural (NAT) vs. conventional (CON) diet and management strategies on feedlot performance, carcass traits and economics. Animals were stratified by BW and allotted to one of 12 pens (6 pens/treatment). Grow-finish diets were formulated to provide 1.14 Mcals NE_g/kg, 13% CP (DM basis; growing) and 1.43 Mcals NE_g/kg, 12.9% CP (DM basis; finishing) respectively. The NAT supplement contained active yeast and the CON supplement contained monensin. Two estrogenic implants (Ralgro, Component ES) were utilized in sequence in CON steers. Data were analyzed as a completely randomized design (PROC MIXED, SAS) with pen serving as experimental unit. Initial BW (BW = 248 ± 1.5 kg) was not different ($P = 0.31$) between treatments. Feed intake during the background phase was greater for NAT ($P = 0.02$); however, CON had greater DMI during finishing ($P = 0.001$). Conventional steers had greater ADG and heavier BW during the grow-finish periods ($P \leq 0.02$). Conventional animals had lower feed costs ($P = 0.005$) and gained more efficiently ($P \leq 0.02$) than NAT steers. Although 12th rib fat and yield grades were similar across treatments ($P \geq 0.39$), other carcass traits measured differed ($P \leq 0.04$). Conventional steers had \$42.88 greater carcass value and \$0.23/kg lower breakevens ($P \leq 0.02$) vs. NAT steers. Despite a \$72.65 difference in pen closeouts, feeding losses were similar across treatment ($P = 0.13$). These data suggest that cattle managed with NAT production practices require higher market prices for equal returns to feeding to compensate for slower growth rates and greater cost of gain.

Key Words: conventional, natural, steer

1037 Effect of calving season and wintering system on cow performance. W. A. Griffin*¹, T. J. Klopfenstein¹, D. C. Adams², G. E. Erickson¹, L. A. Stalker², J. A. Musgrave², and R. N. Funston², ¹University of Nebraska, Lincoln, ²University of Nebraska West Central Research and Extension Center, North Platte.

A 4-year study using two hundred seventeen cows/year (5/8 Red Angus, 3/8 Continental) was conducted to evaluate effects of calving season and wintering system on cow performance. Cows were assigned to one of 5 treatments: 1) spring calving cows (SP) wintered on native range,

2) SP wintered on cornstalks, 3) summer calving cows (SU) wintered on native range, 4) SU wintered on cornstalks, and 5) fall calving cows (FA) wintered on cornstalks. Calves were weaned at 221, 298, and 247 d of age for SP, SU, and FA, respectively. Cow BW and BCS were recorded 3 times during production: 21 d pre-calving, 50 d post calving (pre-breeding), and weaning. Data were analyzed as a completely randomized design and binomial measurements were analyzed using proc freq. Wintering system did not affect calf weaning BW ($P = 0.72$), cow BW ($P = 0.57$), cow BCS ($P = 0.61$) or rebreeding rates ($P = 0.86$). Across calving season, pre-breeding BW was lowest for SP (480 kg), intermediate for SU (570 kg), and greatest for FA (589 kg; $P < 0.01$). At weaning BW was lower for SP compared with SU ($P = 0.03$) and FA ($P = 0.14$) which were similar ($P = 0.64$). At pre-calving BW was greatest for FA (629 kg; $P < 0.01$), intermediate for SU (569 kg), and lowest for SP (533 kg; $P < 0.01$). Cow BCS in the different calving seasons followed the same pattern as BW. Rebreeding performance was numerically lower for FA (90.2%; $P = 0.22$) compared with SP and SU (93.2 vs. 94.3%). Calf ADG from birth to weaning was greatest for SP and lowest for SU ($P < 0.01$). However, calf BW at weaning was greatest for SU (254 kg; $P < 0.01$) compared with SP (238 kg) and FA (234 kg) due to differences in weaning age. In the current study, wintering system did not affect cow performance. Calving season significantly affected cow BW, BCS, and influenced rebreeding performance. In addition wintering system effected calf BW and ADG.

Key Words: calving season, cow-calf systems, wintering system

1038 Eating pattern of Holstein bulls and steers fed high-concentrate rations using a computerized concentrate feeder. M. Devant*¹, S. Marti¹, and A. Bach^{2,1}, ¹Department of Ruminant Production, IRTA, Barcelona, Spain, ²ICREA, Barcelona, Spain.

A total of 132 animals (initial BW = 220 ± 22 kg and age = 172 ± 0.4 d) were used to study the effect of castration on eating pattern. Animals were randomly allocated in 6 pens with 2 pens for each treatment: 44 intact bulls, 44 steers castrated at 3 mo of age (CAS3), and 44 bulls castrated at 8 mo of age during the study (CAS8). The study finished at 285 d of life. Each pen had one computerized concentrate feeder (GEA WestfaliaSurge, Germany), one straw feeder, and one drinker. Concentrate and straw were offered ad libitum. Animals were weighed every 14 d and concentrate eating pattern was averaged for each 14-d period. The statistical model included initial BW as a covariate, treatment, period, and the interaction between treatment and period, as fixed effects, and animal as a random effect. Overall, average BW was 305 ± 58.3 kg, ADG 1.4 ± 0.53 g/d, feed efficiency 22 ± 9.1%, daily intake 6.3 ± 1.01 kg/d, daily feeder visits 6.3 ± 1.29 /d, meal size 1.1 ± 0.25 kg, meal duration 10.2 ± 2.20 min, inter-meal time 244.8 ± 55.38 min, and eating rate 112 ± 16.9 g/ min. Daily intake, meal size, and eating rate increased ($P < 0.001$) with age. The CAS8 steers grew and ate less concentrate ($P < 0.001$) the first 2 wk following castration than bulls or CAS3 steers. Meal size (1.3 ± 0.05 kg) and meal duration (12.4 ± 0.47 min) were greater ($P < 0.001$) in bulls during these 2 wk than in CAS3 steers (1.0 ± 0.05 kg and 9.7 ± 0.46 min, respectively) and CAS8 steers (0.8 ± 0.05 kg and 7.8 ± 0.47 min, respectively). In contrast, bulls visited the feeders less frequently (5.3 ± 0.34 /d) during these 2 wk than CAS3 steers (6.7 ± 0.34 /d) and CAS8 steers (7.7 ± 0.34 /d). Daily intake increases with age mainly through an increase in meal size and eating rate in combination with a slight increase in the number of daily feeder visits rather than an increase in meal duration. Surgical castration at 8 mo of age reduces daily intake, meal size and duration, and increases the number of daily feeder visits.

Key Words: beef, monitoring, eating pattern

1039 Formation of trans-18:1 and CLA isomers in rumen and digesta of bulls fed different polyunsaturated fatty acid diets. D. Dannenberger^{*1}, K. Nuernberg¹, X. Shen², G. Nuernberg¹, and R. Zhao², ¹*Leibniz Institute for Farm Animal Biology, Dummerstorf, Germany*, ²*Nanjing Agricultural University, Nanjing, P.R. China*.

The understanding of mechanisms underlying the biosynthesis of individual trans-18:1 and CLA isomers in the rumen of cattle are important because the ruminal outflow affects the availability of bioactive fatty acids for incorporation into milk and muscle. The aim of the study was to investigate the formation of rumen and digesta trans C18:1 and CLA isomers for final deposition in tissue lipids of bulls by feeding different polyunsaturated fatty acids (PUFA). Twenty-five German Simmental bulls were divided into 3 groups in the experiment and fed diets high in n-3 and n-6 PUFA. The diet affected the biosynthesis of individual trans-18:1 and CLA isomers of the bulls. The isomer t-11c-13 CLA was detected as the most abundant isomer in the rumen of n-3 rich diet-fed

bulls compared with n-6 rich diet-fed bulls. However, the main isomer in muscle lipids c-9,t-11 CLA was synthesized to a low extent in the rumen of n-3 fatty acid rich-fed bulls compared with higher concentrations of this isomer in the rumen of n-6 fatty acid rich-fed bulls. The second most abundant isomer in muscle lipids t-7,c-9 CLA was not detected in the rumen samples of bulls fed all 3 diets, however abundantly t-7,c-9 CLA was identified in the duodenum. The sum of trans 18:1 fatty acids in the rumen was not affected by the diet, however there was an obvious variation for some individual trans fatty acids. The concentration of trans-10-18:1 was significantly higher in the rumen of n-3 fatty acid rich-fed bulls compared with n-6 fatty acid rich-fed bulls. The results indicated that biosynthesis of trans C18:1 fatty acids and CLA isomers in rumen and duodenal digesta gives the opportunity of regulation the postprandial deposition of bioactive fatty acids in tissue lipids.

Key Words: rumen, digesta, CLA