

± 3.46%), while linoleic, linolenic and eicosanoic acid concentration were lower ($P \leq 0.05$) in rainy season. For the essential fatty acids, ARA concentration was lower ($P \leq 0.05$) in rainy (0.08 ± 0.10%) vs. drought (0.48 ± 0.11%) season and DHA had similar concentration ($P \geq 0.05$) along year seasons. It is concluded that beef fattened with tropical forages yield leaner meat in both seasons and its fatty acid compositions is maintained during the year. The SSPi is another alternative toward more sustainable meat production and promising source of dietary fat for human nutrition.

Table 1. Least squares means ±SE of intramuscular fat composition (% of fatty acids) of cattle fattened with tropical forages at two season

Variable	Rainy	Drought
Total fat	3.53±0.22 ^a	2.47±0.21 ^b
Oleic	40.69±3.15 ^a	27.52±3.46 ^b
Linoleic	0.11±0.88 ^b	3.11±0.97 ^a
Linolenic	1.67±0.51 ^b	6.10±0.56 ^a
Eicosanoic	0.11±0.18 ^b	0.93±0.20 ^a
Arachidonic acid (ARA)	0.08±0.10 ^b	0.49±0.11 ^a

^{ab}Superscripts different between columns denote significant difference between season ($P \leq 0.05$).

Key Words: Silvopastoral System, meat, fatty acids

M148 Genetic parameters for fat thickness measured in different anatomical points of *Longissimus* muscle in Nellore cattle. M. N. Bonin^{*1}, F. J. Novais¹, S. L. Silva¹, R. C. Gomes², A. S. Figueiredo¹, P. F. Torralvo¹, L. G. Figueiredo¹, P. A. B. McLean¹, V. N. Barbosa¹, J. H. A. Campo¹, T. V. Solpelsa¹, M. H. A. Santana¹, F. M. Rezende¹, and J. B. S. Ferraz¹, ¹College of Animal Science and Food Engineering, University of Sao Paulo, Pirassununga, Brazil, ²State University of Londrina, Londrina, Brazil.

Carcass backfat thickness (FT) is usually measured between the 12th and 13th ribs, however, in Brazil, the forequarter is not separated from the hindquarter at this section to preserve the loin integrity. Therefore, investigating alternative anatomical points to measure carcass traits in the Brazilian industry is needed. The purpose of this work was to evaluate the genetic correlation between fat thickness measured in different anatomical points of the *Longissimus* muscle (LM). Nellore bulls with 30 mo of age were evaluated for fat thickness between the 12th and 13th ribs by ultrasound (FTU, n = 2,028) using an equipment Aloka SSD500 micrus and a linear 17.2 cm probe and directly in the carcass, at the same site, after slaughter (FTC, n = 610). The other anatomical point was the section between the last lumbar and first sacral vertebra, that is the site where the loin is separated from the carcass hindquarter in Brazilian industries (FTLS, n = 1,072). For the estimation of genetic parameters a pedigree matrix with 14,722 animals was used and multi-traits analyses were carried out including the fixed effects of age at ultrasound evaluations and at slaughter, using the software VCE 6.0 (Groeneveld et al., 2008). The range for FT was 0.00 to 9.00 mm for FTU, 0.5 to 13.00 mm for FTC and 0.5 to 6.00 mm to FTLS. The FTU presented high genetic correlation with FTC (0.90 ± 0.05) and FTLS (0.80 ± 0.14). These correlations suggest that ultrasound is a good predictor of FT in the carcass and is highly correlated with the fat deposition in the loin since that the measures were collected in different anatomic points of the LM. FTC presented a moderate genetic correlation with FTLS (0.52 ± 0.14). The traits heritability values were moderate to low, but similar among each other, with values of 0.14 (0.04), 0.17 (0.07) and 0.13 (0.04) for FTU, FTC and FTLS, respectively. These results suggest that there is a genetic control of the FT deposition in the loin of Nellore bulls and

that the FTLS may be a useful tool for genetic evaluation programs for carcass traits in Brazilian industries.

Key Words: *Bos indicus*, Brazilian cuts, ultrasound

M149 Comparative effects of two beta adrenergic agonists on Warner-Bratzler and slice shear force of USDA Choice strip steaks from calf-fed Holsteins. A. J. Garmyn^{*1}, J. N. Martin¹, J. C. Brooks¹, R. J. Rathmann¹, J. M. Hodgen², K. D. Pfeiffer², C. L. Armstrong², D. A. Yates², J. P. Hutcheson², and M. F. Miller¹, ¹Texas Tech University, Lubbock, ²Merck Animal Health, DeSoto, KS.

Our objectives were to determine the effects of zilpaterol hydrochloride (ZH), ractopamine hydrochloride (RH), or no β-adrenergic agonist (β-AA) on Warner-Bratzler shear force (WBSF) and slice shear force (SSF) of USDA Choice strip steaks in response to 2 postmortem aging periods (14 or 21 d). Calf-fed Holstein steers (n = 565) were assigned to one of 3 treatments: ZH (8.3 mg/kg of DM for 20 d; Merck Animal Health, DeSoto, KS), RH (300 mg/kg/d for 28 d; Elanco Animal Health, Greenfield, IN), or no β-AA (CON). Strip loins (n = 315) were obtained and portioned into 2.5-cm steaks using a Marel Portioning Machine (IPM-3, Marel Townsend, Des Moines, IA). Interactions between treatment and aging were not detected ($P > 0.10$) for any response variables. Supplementation with β-AA resulted in greater WBSF and SSF ($P < 0.01$). Control steaks (3.25 kg) had a lower average WBSF value than steaks from steers fed ZH (3.68 kg) and RH (3.67 kg), which did not differ. Similarly, CON steaks (14.13 kg) had a lower average SSF value than steaks from steers fed ZH (16.11 kg) and RH (16.00 kg). Aging for 21 d resulted in lower ($P < 0.01$) WBSF (3.43 vs. 3.64 kg) and SSF (16.36 vs. 14.46 kg) values compared with steaks aged 14 d. The percentage of steaks with WBSF values <4.4 kg were affected ($P < 0.01$) by treatment, but postmortem aging had no effect ($P = 0.13$). Ninety percent of CON steaks would be considered tender (4.4 kg) based on ASTM guidelines, but β-AA supplementation resulted in a lower percentage of tender steaks for ZH (79.2%) and RH (77.3%). Feeding β-AA ($P < 0.01$) and postmortem aging period ($P = 0.02$) affected the percentage of steaks measuring <3.9 kg of shear force. The percentage of very tender steaks was 84.0, 66.5, and 66.8% for CON, ZH, and RH, respectively. In conclusion, feeding β-AA to calf-fed Holsteins increased shear force values of USDA Choice strip steaks, regardless of postmortem aging period. Although, feeding β-AA reduced the percentage of tender steaks, no differences in shear force were observed between ZH and RH at these inclusion levels.

Key Words: beta agonist, dairy beef, shear force

M150 Carcass characteristics of Nellore steers receiving protected linseed oil during different periods of feedlot. T. M. Pivarro^{*1}, W. Henrique², A. A. M. Sampaio¹, J. L. V. Coutinho Filho², E. A. Oliveira¹, B. L. Rosa¹, and V. G. Carvalho¹, ¹FCAV/Unesp, Jaboticabal, SP, Brazil, ²APTA, São José do Rio Preto, SP, Brazil.

The objective was to assess the supply of linseed oil or linseed oil protected from ruminal degradation during different periods of feedlot feeding on carcass characteristics of 35 Nellore steers. The animals were housed in individual pens for 105 d at Sao Paulo Agency for Agribusiness Technology, in Sao Jose do Rio Preto, Brazil, and received one of the following diets: control (without oil), with linseed oil during all the confinement (LO), or protected linseed oil during all the feedlot (OLiP 3), in the last 70 d (OLiP 2) or the last 35 d (OLiP 1). The corn silage was used as the exclusive roughage in the proportion of 40% in DM of diet. All diets were isonitrogenous and those with addition of oil were