Crossbred steers (n = 98; BW = 413 ± 37.7) were used in a randomized, complete block design to evaluate Next Enhance 300 (NE300, Novus Intl. Inc.) feeding on carcass characteristics, meat quality, and consumer sensory characteristics of LM steaks. Steers were blocked by initial BW and randomly assigned to treatment (TRT), with 5 replications per TRT. Corn based diet dietary TRT consisted of 0 (CON, n = 25), 150(n = 24), 300 (n = 25), and 600 (n = 24) mg·hd$^{-1}$·d$^{-1}$ of NE300. Five steers/TRT (n = 20) were harvested at the University of Missouri abattoir. At 96 h post mortem (d 0) carcasses were ribbed and a 4 rib section was vacuum packaged. Aged color measurements were taken on d 14 and further quality analysis was performed on 4 steaks (1.54 cm). A quadratic increase ($P = 0.01$) in dressing percent (DP) and a quadratic decrease ($P = 0.05$) in 12th rib backfat (BF) occurred with increasing NE300 levels, with CON steers having the lowest DP and the most BF. NE300 caused a quadratic increase in LM area (LMA) ($P = 0.10$) and LMA/45.4 kg ($P = 0.10$). There was a quadratic decrease ($P = 0.04$) in calculated USDA yield grade (YG) with increasing NE300 inclusion. Due to increased DP and LMA and decreased BF and YG of 150 and 300, a quadratic increase in carcass price/45.4 kg ($P = 0.15$) was observed. However, HCW and marbling score did not differ ($P > 0.05$), thus overall carcass value did not differ. NE300 inclusion did not affect a* or b* color values at d 0 or 14. D 0 L* values were linearly decreased ($P = 0.05$) by NE300, but d 14 L* values were not affected. There was a linear decrease ($P = 0.07$) in cook loss due to NE300. A consumer sensory panel (n = 55) was performed on one steak per steer, with 4–5 panelists evaluating each sample. There was no difference ($P > 0.05$) among TRT for Warner-Bratzler shear force, drip loss, percent moisture, percent fat, or consumer opinion of overall like, liking of tenderness, juiciness, and flavor and level of tenderness, juiciness, and flavor. Feeding NE300 improved DP, BF, LMA, and YG, and had no effect on organoleptic properties of LM steaks from beef steers.

**Key Words:** essential oil, meat quality

**TH300     Incidence of white striping in relation to the weight of broiler breast fillets.** T. Z. Ferreira, S. L. Vieira, and L. Kindlein*, *Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil.*

The objective of the study was to evaluate the incidence of normal (NORM), moderate (MOD) and severe (SEV) degrees of white striping on broiler breast fillets with different weights. With the increase in growth rate and muscle size, there has been as increase in incidence of pectoral myopathies. One of the recent meat quality problems that have been identified is the appearance of white striping or striations in poultry breast fillets following the direction of the muscle fiber. The condition is mainly associated with heavier birds, and high incidences (>50%) can occur, especially in big birds. For this experiment, 12-thousand Cobb 500 male broilers (42 d-old) of a commercial broiler strain were slaughtered and 144 (12%) broilers breast fillets were collected. The samples were separated according to weight (>310 or < 310 g). The macroscopic classification of the carcasses was performed according to the degree of severity of the stripes apparent on the pectoral muscle considering 3 groups: NORM, MOD and SEV. The data were analyzed using ANOVA. Individual birds were considered as the experimental unit for the entire analysis. Eighty-four percent (121) broilers breast fillets being classified as of moderate degree of white striping, 8.33% (12) SEV, exhibited white lines, parallel to the muscle fibers very visible on the fillet surface, and only 7.64% (11) considered as NORM, did not show any distinct white lines. Seventy-nine broilers breast fillets presented weight > 310 g, being 12.65% (10) considered as SEV, 82.27% (66) as MOD and only 5.08% (3) as NORM, totaling 94.92%

of the samples with the presence of white striping. On the other hand, of the 65 samples with weight less than 310 g, 87.7% showed presence of this myopathy, being only 3.08% (2) classified as SEV, 84.62% (55) as MOD and 12.31% (8) as NORM. This study results confirm that there is a relationship between the weight of the fillet with the incidence and degree of white striping, that suggests that the increase in growth rate of poultry, accompanied with the selection for greater growth rates of broilers, could produce a greater incidence of this condition.

**Key Words:** meat quality, myopathy, white striping

**TH301     Evaluation of metabolic, endocrine and meat quality traits in longissimus muscle of beef cattle.** M. D. Poleti, A. F. Rosa, C. T. Moncau, S. L. Silva, J. P. Eler, and J. C. C. Balieiro*, *University of Sao Paulo, Pirassununga, Sao Paulo, Brazil.*

The purpose of this work was to evaluate the metabolic, endocrine and meat quality traits in samples of longissimus dorsi (LD) muscle. We used 241 Nelore cattle raised in pasture and finished in feedlot. The animals were slaughtered at approximately 24 mo and with average weight of 508 kg. LD muscle samples were harvested from the carcass and frozen in liquid nitrogen for determination of glycogen and lactate concentrations. Steaks of 2.5 cm LD muscle (between 12° and 13° ribs) were removed at 24 h post mortem, vacuum packaged and kept at 2°C for until 14 d for subsequent Warner-Bratzler Shear Force (WBSF) evaluation. At 1, 7 and 14 d, were removed from refrigeration, allowed to bloom (20 min) and measured for L*, a* and b* objectively by using a portable spectrophotometer. Blood samples to obtain plasma were collected beginning of feedlot (ante-mortem) and at slaughter (post mortem) to determine cortisol and adrenocorticotropic hormone (ACTH) concentrations. The pH after 24 h (pH24hs) greater or equal to 5.8 were considered as potential DFD meat and pH lower than 5.8 were considered regular meat. We observed that 18.7% (n = 45) of the samples had pH24hs greater or equal 5.8. The glycogen and lactate concentrations in muscle ranged from 1.71 to 72.51 µmol/g and 1.54 to 49.53 µmol/g, respectively. However, in samples with pH24hs ≥ 5.8, only 37.8% (n = 17, for glycogen) and 8.9% (n = 3, for lactate) samples showed glycogen and lactate concentrations below 6.13 µmol/g and 6.0 µmol /g, respectively. The pH24hs had significant ($P > 0.05$) effect for color measurements (L*, a*, b*) at all times of aging, as well as, for cooking loss at 1st and 14th days of aging. The pH24hs had not significant effect ($P > 0.05$) for cortisol and ACTH concentrations (ante-mortem and post mortem). In the same way, the shear force values at different days of aging were not influenced by pH24hs. These results suggest that the concentration of glycogen in muscle is one of the factors that determine the appropriate reduction pH 24 h, but not the only one.

**Key Words:** DFD meat, animal stress, HPA axis reactivity

**TH302     Visible and near infrared spectroscopy to predict beef quality traits in *Bos indicus* cattle.** S. L. Silva*[1], M. N. Bonin[1], R. C. Gomes[2], M. R. Mazon[1], T. M. C. Leme[1], J. M. Balage[1], L. S. Martello[1], J. B. S. Ferraz[1], and P. R. Leme[1], [1]*University of Sao Paulo, Pirassununga, SP, Brazil,* [2]*Embrapa Beef Cattle, Campo Grande, MS, Brazil.*

This study was carried out to evaluate the ability of visible and near infrared spectroscopy (VISNIRS) to evaluate beef quality traits of Longissimus muscle (LM) in Nellore (Bos indicus) cattle. Twenty 4 h after slaughter carcasses from 206 Nellore bullocks (n = 103) and steers (n = 103) were quartered between 12th and 13th ribs and the VISNIR spectra (400 to 1,500nm), color measurements (L*,a*, b*)

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and pH (pH24) of LM were collected. Following LM samples were collected for Warner-Bratzler shear force (WBSF) and cooking loss (CL) determinations. Samples were grouped in tender (WBSF ≤ 5.5 kg), intermediate (5.57.5 kg) and tough (WBSF ≥ 7.5 kg) meat. The group of animals who had tender samples showed smaller absorbance from 400 to 1,170nm whereas in those of tough group absorbance was greater in near infrared region (1,170 to 1,500nm). Regression equations obtained from VISNIR spectral data explained high portion of variation of WBSF ($R^2$ = 0.84 and 0.80), CL ($R^2$ = 0.96 and 0.80), pH24 ($R^2$ = 0.78 and 0.64), L* ($R^2$ = 0.93 and 0.82), a* ($R^2$ = 0.96 and 0.92), b* ($R^2$ = 0.95 and 0.70) in calibration and validation data sets, respectively. When comparisons were made considering tenderness groups (predicted VS observed WBSF), samples were correctly classified 86% of time. The VISNIRS technology can be used as a nondestructive tool to estimate beef quality traits of fresh meat.

**Key Words:** beef cattle, meat, tenderness

**TH303  Effect of aging on pH and water holding capacity of muscles from Nellore beef cattle.** L. R. Simonetti, J. F. Lage, E. E. Dallantonia, E. San Vito*, E. A. Oliveira, M. Machado, L. M. Delevatti, G. M. Delamagna, and T. T. Berchielli, *São Paulo State University, Jaboticabal, São Paulo, Brazil.*

This objective of this study was to evaluate the effects of aging on pH and water holding capacity (WHC) of 5 muscles: biceps femoris (BF), gluteus medius (GM), longissimus dorsi (LD), semitendinosus (ST) and trapezius thoracis (TT) from Nellore young bulls fed in feedlot. Fourteen young bulls (Nellore), with 15 mo of age were confined to individual stalls with feeders and drinkers. The diet was consisted of 40% corn silage and 60% of concentrate (grounded corn, soybean meal, urea/ammonium sulfate, mineral mixture). After 60 d of feed, the animals were harvested and the carcasses were chilled at 0°C for 24 h. The muscles were removed, individually vacuum packaged and chilled at 0°C for 1, 7 and 14 d post mortem. The WHC was measured for the difference between the weights of the sample before and after it was subjected to a pressure of 10 kg for 5 min. The experiment was conducted according to a completely randomized design in a factorial arrangement 3 × 5 (3 aging days × 5 muscles) with 14 replicates. Data were analyzed by the GLM procedure of SAS, and the Tukey test used considering 5% probability. The interaction between aging days and muscles was significant for WHC ($P$ = 0.01). The pH ($P$ < 0.01) and WHC ($P$ < 0.01) from beef evaluated in 7 d was lower ($P$ < 0.01) than beef evaluated in 1 or 14 d. The TT muscle had higher value of pH ($P$ = 0.01) than all muscles evaluated. The BF muscle had higher WHC ($P$ = 0.01) than ST and TT muscles. The aging reduce the pH and the water holding capacity of beef. The biceps femoris muscle showed greater water holding capacity than those muscles semitendinosus and trapezius thoracis.

**Key Words:** beef cattle, commercial cut, meat quality

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