319 Effect of vitamins E and C on collagen turnover by bovine intramuscular fibroblasts. A. C. Archile*[2,1], I. B. Mandell[1], S. P. Miller[1], M. C. Cha[1], and P. P. Purslow[1], [1]*University of Guelph*, *Ontario, Canada*, [2]*University of Zulia*, *Maracaibo, Venezuela*.

Intramuscular collagen contributes to the variation in background toughness of meat. Vitamin E may reduce intramuscular collagen maturity, while vitamin C has been reported to improve meat texture in beef. The objective of this study was to investigate whether vitamins E and C are able to regulate collagen turnover in bovine intramuscular fibroblasts, the cells responsible for its synthesis and degradation by secretion of matrix metalloproteinases (MMPs). Fibroblasts were isolated from *longissimus dorsi* (LD) and *semitendinosus* (ST) muscles from a yearling animal and grown in DMEM + 10% FCS. Fibroblasts were treated with vitamins E and C for 24 h as follows: 1) with 50 or 100 μ*M* of vitamin E, 2) 50 μ*M* of vitamin C, 3) either 50 μ*M* vitamin E+50 μ*M* vitamin C, or 100 μ*M* vitamin E+50 μ*M* vitamin C. Control cells received no vitamins. After treatment for 24 h, media were collected and analyzed for MMP-2 activity by zymography. Cell lysates were tested for total collagen synthesis (TC) using the Sircol assay. Data were analyzed by 2-way ANOVA, Fisher's LSD and Pearson bivariate correlation. Vitamins E and C each increased ($P < 0.05$) the activity of MMP-2 secreted by fibroblasts from both muscles, but the effect was stronger ($P < 0.05$) in cells derived from LD than from ST. A synergistic effect between vitamins E and C on MMP-2 activity was observed for cells from both muscles. Both vitamins increased TC in cells from both muscles above the controls to a different extent; higher TC values ($P < 0.05$) were found for ST cells versus LD cells. There was a strong positive correlation ($P < 0.05$) between MMP-2 activity and TC synthesis. These results confirm the hypothesis that both vitamins may increase collagen turnover in intramuscular fibroblasts, which could have direct implications for the response of these muscles to the animal's diet, affecting collagen turnover in vivo. A high rate of collagen turnover may lead to increased collagen solubility in muscles which can affect meat tenderness.

Key Words: vitamins E and C, collagen turnover, meat tenderness

320 Fatty acid composition of Jersey beef was affected by finishing diet and tissue type. T. Jiang*[1], C. J. Mueller[2], J. R. Busboom[1], M. L. Nelson[1], J. O'Fallon[1], and G. Tishida[2], [1]*Washington State University*, *Pullman,* [2]*Oregon State University*, *Corvallis*.

Our objective was to determine the impacts of finishing diet energy level and tissue type on fatty acid composition and palatability of Jersey beef. Steers (n = 20) were assigned to a randomized complete block (RCB) design with initial weight as blocks (Light, 228.0 vs. Heavy, 261.4 ± 0.4 kg) and finishing diet (70 vs. 85% corn) as treatments. Ribeye steaks were collected for sensory evaluation and were dissected to obtain muscle, seam, and subcutaneous (s.c.) fat. In addition, fat samples were collected from s.c. tissue (BF), kidney (KPH), and the intestinal tract (VIS). Data for fatty acids and sensory evaluation were analyzed as a split-plot design and a RCB design, respectively. Saturated fatty acid (SFA) level was lower ($P < 0.05$) and monounsaturated fatty acid (MUFA) was higher ($P < 0.05$) in s.c. fat than in muscle or seam fat, which could be explained by higher ($P < 0.05$) myristoleic and vaccenic acid levels in s.c. fat. Oleic acid (C18:1) level was higher ($P < 0.05$) in s.c. fat than in seam fat, accompanied by a higher ($P < 0.05$) Δ9 desaturase index in s.c. fat. Trans fatty acid (TFA) and CLA levels were lower ($P < 0.05$) in muscle than in seam or s.c. fat. Increased concentrate in the diet decreased ($P < 0.05$) n-3, n-6 and total polyunsaturated fatty acid (PUFA) levels in muscle; however, n-6: n-3 ratio remained the same. SFAs and TFAs, n-6: n-3 ratio, and elongase index were lower ($P < 0.05$) in BF than in KPH or VIS. Increased concentrate in the diet increased ($P < 0.05$) TFA in BF, KPH, and VIS and linolenic acid (C18:3n-3) and elongase index in BF. Finishing diet did not impact sensory attributes of the beef steaks ($P > 0.05$). All the steaks were acceptable in palatability with an initial tenderness score of 6.4 ± 0.2 and a beef flavor score of 5.5 ± 0.1 based on a 10 cm scale. In conclusion, fatty acid composition differed depending on fat location in the body. The lower concentrate diet produced beef with a more health-beneficial fatty acid composition, without affecting beef eating quality.

Key Words: finishing diet, tissue, fatty acid composition

321 Effects of frame size and animal age on beef carcass quality and tenderness. S. K. Duckett*[1], J. P. S. Neel[2], R. M. Lewis[3], W. Swecker[3], M. L. Wahlberg[3], J. P. Fontenot[3], and W. Clapham[2], [1]*Clemson University*, *Clemson, SC,* [2]*USDA-ARS*, *Beaver, WV,* [3]*Virginia Tech University*, *Blacksburg*.

Angus-cross steers (n = 96) were used to determine the effects of frame size (medium, MED or small, SM) and animal age on beef carcass quality and tenderness in a forage finishing system. Steers grazed mixed pastures (bluegrass/white clover) and were slaughtered at 16.6, 18.6, and 20.3 mo of age in a 2-yr study. At 24 h postmortem, carcass traits were collected and a rib from each carcass obtained for Warner-Bratzler shear force (WBSF) analysis. In yr 1, postmortem aging treatments included 14 and 28 d. In yr 2, postmortem aging treatments included 2, 4, 7, 14, and 28 d. Hot carcass weight, fat thickness, and skeletal maturity scores increased ($P < 0.05$) with animal age. Marbling scores, quality grades, and yield grades were greater ($P < 0.05$) for 20.3 than 16.6 mo. Longissimus muscle color was lighter ($P < 0.05$) and less red ($P < 0.05$) in 16.6 than 20.3 mo. Subcutaneous fat color was lighter ($P < 0.05$) and yellower ($P < 0.05$) for older than younger carcasses. Hot carcass weight and ribeye area were greater ($P < 0.05$) for MED than SM. Frame size did not alter other carcass parameters. In both years, the interaction between animal age and postmortem aging was significant. In yr 1, WBSF values at d 14 were lower ($P < 0.05$), indicating greater tenderness, for 16.6 mo than 18.6 and 20.3 mo. Extending the postmortem age to 28 d did not change ($P > 0.05$) WBSF values in young and intermediate ages but did improve tenderness ($P < 0.05$) for the older age group. In yr 2, WBSF values were lower ($P < 0.05$) at d 2 of postmortem aging for 16.6 mo than 18.6 or 20.3 mo. At 14 d postmortem, steaks from 16.6 and 18.6 mo were more tender ($P < 0.05$) than 20.3. By d 28, WBSF values did not differ ($P > 0.05$) among animal ages. In pasture-based beef finishing systems, increasing animal age results in larger carcasses with more external fat and marbling; however tenderness of ribeye steaks decreases with advanced age such that longer postmortem aging times are required to achieve similar tenderness level.

Key Words: beef, forages, tenderness

322 Effect of skeletal separation and moisture enhancement on eating quality of cull cow beef. P. Streiter*, C. Campbell, and I. Mandell, *University of Guelph*, *Guelph, Ontario, Canada*.

Sixty-two cull beef cows of known age and breed were slaughtered without electrical stimulation to investigate skeletal separation and moisture enhancement effects on eating quality. Carcass sides were designated to one of 4 postmortem processing treatments: 1) No

additional processing (Control), 2) prerigor skeletal separation (SS) after carcass dressing, 3) moisture enhancement (ME) using calcium ascorbate (CaAsc) 24 h postmortem and 4) Combination of SS and ME. Skeletal separation involved severing the pelvic bone at the narrowest part of the body of the ilium, and detaching vertebrae and connective tissue between 6th and 7th thoracic and 5th and 6th lumbar vertebrae. At 24 h postmortem, longissimus muscle from the ribeye (RE) and loin along with semimembranosus and semitendinosus (ST) muscles were excised from each carcass side with designated muscles injected with CaAsc (11% by wt). All muscles were cut into steaks for subsequent meat quality evaluation including shear force (SF) determination of tenderness for 7, 14, and 21 d aged product. A 10 member trained taste panel assessed treatment differences in palatability attributes for 14 d aged RE steaks as well as comparing sensory findings for cull cow vs. red branded beef from AA (USDA Select) and AAA (USDA Choice) quality grade carcasses. Skeletal separation reduced SF ($P < 0.001$) for RE steaks while moisture enhancement reduced SF ($P < 0.021$) for RE and ST. Postmortem aging for 14 vs. 7 d reduced SF to a lesser extent for SS vs non-skeletal separated sides, resulting in a SS by postmortem aging interaction ($P < 0.01$). Skeletal separation and moisture enhancement improved ($P < 0.01$) taste panel ratings for tenderness with an additive effect when combining SS with ME. Moisture enhancement tended to improve ($P < 0.07$) juiciness scores. While beef flavor was not affected by postmortem processing, ME increased ($P < 0.0001$) off-flavor scores. The combination of SS and ME may provide an additive effect for enhancing tenderness in the longissimus but at the expense of undesirable off-flavors.

Key Words: cull cows, skeletal separation, calcium ascorbate

323 Accuracy of real-time ultrasound for body composition traits for evaluating carcass traits in medium wool crossbred lambs. F. R. B. Ribeiro*[1], J. A. Carter[1], C. A. Hughes[1], W. S. Ramsey[2], J. W. Savell[2], R. R. Riley[2], C. Sharpton[2], and R. G. Tait Jr.[3], [1]*Texas A&M University-Commerce*, *Commerce,* [2]*Texas A&M University*, *College Station,* [3]*Iowa State University*, *Ames, IA*.

The objective of this study was to evaluate the accuracy of real-time ultrasound (RTU) measurements of body composition for evaluating lamb carcass traits. Data for this study were obtained from 25 medium wool crossbred lambs. Animals were scanned 2 to 5 d before harvest. The RTU measured traits were ultrasound BW (uBW, mean = 59.2 kg), 12–13th rib fat thickness (uBF, mean = 0.50 cm), and 12–13th rib *longissimus lumborum* muscle area (uLMA, mean = 18.6 cm^2), and carcass traits were HCW (mean = 35.3 kg), 12–13th rib fat thickness (cBF, mean = 0.56 cm), and 12–13th rib *longissimus lumborum* muscle area (cLMA, mean = 19.3 cm^2). Measurements were collected using an Aloka 500 with a 12-cm 3.5MHz transducer, each animal′s wool was clipped to no longer than 0.64 cm, and vegetable oil was used as a coupling agent to increase image quality. In addition to these traits, body condition score (BCS), hip height (HH), and ultrasound-measured rump fat thickness (uRUMP) also were collected. Data were analyzed using the PROC REG and PROC CORR procedures of SAS. Accuracy of RTU was determined by calculating the correlation, mean bias, and standard error of prediction (SEP) between RTU measurements and carcass measurements. The correlation, mean bias, and SEP between uBF and cBF were 0.90, −0.06 cm, and 0.09 cm, respectively, and for uLMA and cLMA were 0.66, −0.65 cm^2, and 2.12 cm^2, respectively. BCS was correlated ($P < 0.05$) to uLMA, uRUMP, and HH (0.62, 0.43, and 0.43, respectively). HH was correlated ($P < 0.05$) to uBF, uLMA and uRUMP (0.53, 0.41, and 0.60, respectively). These results suggest that RTU can be used as a non-invasive technique to accurately measure carcass traits in live lambs.

Key Words: ultrasound, carcass composition, lambs

324 Farming system changes fatty acids profile and lipid oxidation in meat of Sarda-breed suckling lambs. A. Nudda*, G. Battacone, M. G. Manca, R. Boe, A. Fenu, G. Spanu, and G. Pulina, *Dipartimento di Scienze Zootecniche, University of Sassari*, *Sassari, Italy*.

A study was carried out to evaluate the fatty acid composition of meat of suckling lambs raised in different breeding systems. Thirty-six pregnant ewes grazing on natural pasture (8 h/d) were divided into 2 groups supplemented with low (200 g/d; group L) or high (600 g/d; group H) amounts of concentrate. At lambing the ewes were divided in 2 subgroups (12 lambs each) balanced for single animals and twins: lambs kept indoor during the grazing time of the ewes (group I) and lambs which followed the mother on pasture (group O). Lambs were slaughtered at 27 d of age. After 24 h of refrigeration at 4°C, the tight muscles were dissected from each right half-carcass. Fatty acid profile and lipid oxidation (thiobarbituric acid test, TBARs) were studied. The data were analyzed with a linear model that included the fixed effects of supplementation (L vs H) and management (O vs I) and their interaction. In general, lamb meat from L ewes did not ($P > 0.10$) differ from the lamb meat from H ewes for the fatty acids analyzed, except for t11 C18:1 ($P < 0.01$). Management had relevant effect on the level of several fatty acids. The meat from O lambs had a lower ($P < 0.05$) content of C14:0, C16:0 and a higher ($P < 0.05$) content of C18:2 n6 and C18:3 n3 than that from I lambs. The content of DHA, PUFA n3 and PUFA n6 tended ($P < 0.10$) to be higher in O lambs than I lambs. The TBARs were not ($P > 0.10$) influenced by the 4 breeding systems. Interaction effects were significant ($P < 0.05$) for C18:0, C18:1 t10, C18:1 c9, C18:2 n6, PUFA n6, n6/n3 and TBARs. In conclusion, the dose of 600 g/d of concentrate supplemented to the ewes did not modify the FA profile and the lipid oxidation of the meat of their suckling lambs compared with the dose of 200 g/d of concentrate. Lambs, which followed the mother on pasture, produced meat with a higher content of C18:3 n3, probably because of the presence of grass in their diet.

Research supported by the Fondo di Ateneo per la Ricerca (Università di Sassari).

Key Words: suckling lamb, fatty acid, farming system

325 Comparisons of different muscles metabolic enzymes and muscle fiber types in Jinhua and Landrace pigs. J. Guo*, T. Z. Shan, T. Wu, Y. F. Zhang, and Y. Z. Wang, *Institute of Feed Science*, *Hangzhou, Zhejiang, China*.

Western and indigenous Chinese pig breeds show obvious differences in muscle growth and meat quality. However, the underlying molecular mechanism remains unclear. The objective of the present study was to investigate the variations in meat quality, muscle fiber type and enzyme activity of local Jinhua and exotic Landrace pigs at the same age (180 d of age, 4 animals individually). Using real-time RT-PCR, we detected the mRNA levels of myosin heavy chain isoforms such as oxidative (type I and type II a), glycolytic (type II b), and intermediate (type II x) fibers in longissimus dorsi and soleus muscles. Furthermore, the metabolic enzyme activities of lactate dehydrogenase (LDH), succinic dehydrogenase (SDH) and malate dehydrogenase (MDH) in longissimus dorsi and soleus muscles were also detected. The results showed that the Jinhua breed exhibited a higher intramuscular fat ($P < 0.01$) content and lower drip loss compared with Landrace ($P < 0.05$). Meanwhile, the

mRNA levels of oxidative and intermediate fibers were elevated in the Jinhua breed, whereas the glycolytic fibers were more highly expressed in the Landrace ($P < 0.01$). Furthermore, the Jinhua pigs possessed a higher oxidative capacity than did the Landrace ($P < 0.05$). These results suggested that the elevated expression of the oxidative and intermediated fibers in Jinhua breed is related to higher activities of oxidative enzymes and meat quality as indicated by a higher intramuscular fat and lower drip loss. These results may provide valuable information for understanding the molecular mechanism responsible for breed specific differences in growth performance and meat quality.

Key Words: Jinhua pigs, myosin heavy chain, meat quality

326 Effects of cage versus floor litter environments on blood parameters and meat quality in broilers. J. Yuan*, C. H. Huang, B. Wang, S. H. Zhou, and Y. Guo, *State Key Laboratory of Animal Nutrition, China Agricultural University*, *Beijing, China*.

The study was conducted to determine the effects of cage vs. floor rearing on some blood parameters and meat quality in broilers. At 3-wk of age broilers were allocated into 2 pens (9 birds/0.7 m^2/pen) of litter floor pens; one-story cages and battery cages, separately. At the end of 7 wk the experiment was terminated. Nine birds of every treatment were harvested. Breast muscle yield, muscle fiber characteristics, meat quality and blood parameters were determined. We observed that the breast muscle yield was lowered ($P < 0.05$) in broilers reared in the battery cages compared with those on floors. There were no ($P > 0.05$) differences for myofiber density of breast muscle among different rearing systems. Birds reared in battery cages, however, tended ($P < 0.10$) to be smaller in diameter of breast myofibers and exhibit lower drip loss than birds reared on floor. The pH (24h) of breast muscle was lower ($P < 0.05$) in broilers reared in one-story cages than those reared on litter floors or in battery cages. Higher ($P < 0.01$) levels of serum Insulin-like factor-1 (IGF-1) and plasma triglyceride (TG) were observed in broilers reared in one-story cages than birds on litter floor or in battery cages. No ($P > 0.05$) differences were found in the activities of plasma lactate dehydrogenase, creatine kinase, glutamic oxalacetic transaminase, glutamate-pyruvate transaminase (GPT), concentrations of plasma pyruvic acid (PA), lactic acid, triglyceride, nonesterified fatty acids, malonaldehyde, glucose and uric acid and serum corticosterone. Rearing in one-story cages and battery cages, however, tended ($P < 0.10$) to lower the concentrations of plasma GPT and PA in boilers. The results suggest that one-story cages do not affect the breast muscle yield and meat quality of broilers, and the energy, protein and lipid metabolisms of broilers. Battery cages rearing lowers myofiber diameter and consequently reduces breast muscle yield, which can be attributed to the lower protein synthesis and negative energy balance.

Key Words: rearing environment, meat quality, broilers

327 Effect of dietary selenium yeast (Sel-Plex) and vitamin E supplementation to broilers on meat quality characteristics of raw and marinated breast fillets. A. D. Quant*[1], A. J. Pescatore[1], J. L. Pierce[1], K. M. McClelland[2], G. R. Rentfrow[2], A. H. Cantor[1], M. J. Ford[1], and W. D. King[1], [1]*Alltech-University of Kentucky Nutrition Research Alliance*, *Lexington,* [2]*Department of Animal and Food Sciences, University of Kentucky*, *Lexington*.

A study was conducted to evaluate the effects of dietary supplementation of selenium (Se) and vitamin E (Vit.E) to broilers on meat quality characteristics of raw and marinated breast fillets. This study utilized 576 Cobb500 broilers that were randomly allotted to 4 treatments with 48 pens of 12 birds/pen in a 2x2 factorial design (12 replicates/treatment). Broilers were fed a corn-soybean meal control diet with no added Se or Vit. E, supplemented with either 0.3 mg Se/kg diet as Se yeast (Sel-Plex, Alltech, Inc., Nicholasville, KY), or 30 IU Vit. E/kg as all-rac-α-tocopheryl acetate, or a diet supplemented with both Se and Vit. E. Broilers were humanely harvested at 49 and 56 d of age (raw and marinated portion, respectively) and breast fillets were sampled for analysis of meat quality characteristics. Marinated breast fillets were soaked in a 3.2% sodium pyrophosphate and 4% NaCl solution for 13 h (marinade pH: 9.74). In raw breast fillets, Se yeast supplementation significantly decreased drip loss at 3d compared with the control ($P = 0.049$) and Vit. E ($P < 0.01$) treatments, however by 7d, the only observed improvement was Se yeast compared with Vit. E ($P < 0.01$). Oxidative stability at 7d (as indicated by thiobarbituric acid reactive substance values) of the raw breast fillets was improved by Se yeast supplementation with ($P = 0.095$) or without added Vit. E ($P < 0.01$) compared with the control treatment. In the marinated breast fillets, there was no effect of dietary treatment on drip loss, however oxidative stability at 7d was significantly improved by all 3 antioxidant containing treatments ($P < 0.01$) compared with the control. Antioxidant supplementation did not affect color stability, carcass yield (WOG, front half, saddle), breast fillet pH, cooking loss, and tenderness values in both the raw and marinated breast fillets. These results indicate that dietary supplementation of Se yeast in broiler diets decrease drip loss and improve oxidative stability in raw breast fillets, and greatly improve oxidative stability in marinated breast fillets.

Key Words: selenium, meat quality, marination

328 Effect of three different postmortem electrical stimulation methods on quality of early-deboned broiler breast meat. H. Zhuang*, E. M. Savage, and K. C. Lawrence, *USDA-ARS*, *Athens, GA*.

The present experiment was carried out to evaluate the effects of electrical stimulation (ES) immediately pre-scalding (PS), ES immediately post-defeathering (PD) or PS combined with PD (PSPD) on the quality of early-deboned (2 h) broiler breast muscles, pectoralis (p.) major (fillets) and p. minor (tenders). No stimulation, early-deboned (2 h) and 24 h deboned (24 h) fillets were used for the comparison. The 42-d-old broiler carcasses were electrically stimulated with pulsed current at 200 V for 30s (1min total for PSPD), and breast meat was deboned 2 h postmortem. Quality indicators evaluated were: CIELAB L*, a* and b* color and pH of the raw fillets; Warner-Bratzler (WB) shear force (cooked meat) and cook yields of the fillets and tenders. There were no differences in raw fillet color and pH between the 3 ES treatments. Effects of different ES methods on meat WB shear force values and cook yields varied with breast muscles. For the fillets, the average WB shear force values of both the PS and PSPD samples, which were not different from each other, were significantly lower than those of the PD samples. There were no differences in cook yields between the PS and PD, or between the PS and PSPD, although cook yield of the PD samples was significantly higher than the PSPD samples. For the tenders, there were no differences in the average shear force values and cook yields between the 3 ES treatments. Regardless of ES method and muscle type, early-deboned broiler breast meat from ES carcasses required significantly less force to shear than the 2 h control, and more force than the 24 h control. These results indicate that ES can tenderize early-deboned poultry breast muscles; however, the effectiveness of ES tenderization varies with ES method for the fillets. Single PS is more effective in reducing fillet shear values than single PD, and there is no further reduction in shear values with double PSPD compared with the single PS.

Key Words: broiler, electrical stimulation, breast meat

329 Optimization of the time of marination for early deboned broiler breast fillets. V. A. Kuttappan*, V. B. Brewer, J. F. Meullenet, and C. M. Owens, *University of Arkansas*, *Fayetteville*.

Marination is an effective method which can be used to improve the tenderness of the early deboned breast fillets. However, there is little information available on the impact of the time at which fillets are marinated. The present study was intended to optimize the time of marination for chicken fillets deboned at 2h postmortem (PM). In this study, a total of 300 broilers (43–46days) were processed using an in-line system and deboned at 2h PM over 5 replications. Fillets were marinated at either 2.5, 4, 6, 8 or 24h PM. A non-marinated control was included. The fillets were vacuum tumbled (20 min) with a 15% marinade (final concentration of 0.5% salt and 0.45% phosphate). The left fillets were held for 24h in cooler before freezing while the right fillets were frozen immediately after marination to simulate various commercial practices. Marination pickup, retention, thaw loss, cook loss and Meullenet Owens Razor Shear energy (MORSE) values were measured. There was a significant increase in marinade pickup as the time of marination increased from 2.5 to 24h PM. Marination retention varied slightly among treatments. Thaw loss was significantly higher for fillets marinated and immediately frozen compared with those held until 24h PM before freezing, with the exception of fillets marinated at 8 and 24h PM. There was a significantly higher cook loss for the control fillets when compared with all marinated fillets suggesting that marination resulted in better water holding capacity. There was no significant difference between MORSE values of the non-marinated control and the fillets marinated at 2.5h PM. However, the MORSE values for the marinated fillets significantly decreased as the time of marination increased from 2.5 to 24h PM. The tenderizing effects of marination were only observed when marinated at 4h PM and later in this study. The fillets marinated at 8 and 24h PM had significantly lower MORSE than other treatments. Freezing immediately after marination did not impact MORSE values. The results of this study suggest that time of marination can impact marination pickup and quality factors such as tenderness.

Key Words: marination, early deboned, broiler fillets

330 Consumer acceptance of visual appearance of broiler breast meat with varying degrees of white etriping. V. A. Kuttappan*, J. F. Meullenet, and C. M. Owens, *University of Arkansas*, *Fayetteville*.

White striping is a condition associated with heavier broiler breast fillets and is observed grossly as white striations seen parallel to the direction of the muscle fibers. The present study was intended to assess the consumer acceptance of broiler fillets with different degrees of white striping condition. High resolution digital images of fillets, representative of varying degrees of white striping, were shown to 75 consumers in a blind study. Individual images were presented using a completely balanced randomized design. There were 4 replicates of individual fillets within each white striping category (Normal-NORM, Moderate-MOD, and Severe-SEV) and one picture of tray pack (3 fillets) for each category. The consumers were asked to express their overall liking for appearance with a 9-point hedonic scale (9 = like extremely; 1 = dislike extremely), purchase intent using a 5-point scale (5 = definitely would buy; 1 = definitely would not buy). An open ended comments section was also included. The results showed that NORM fillets had a significantly higher ($P < 0.05$) hedonic score (6.9) than the MOD fillets (6.1) which was also significantly higher ($P < 0.05$) than the SEV fillets (4.5), indicating that as severity of white striping increased, the consumer acceptance decreased. From the distribution of the responses, 10.7, 22.4 and 56.7% of the consumers disliked the NORM, MOD, and SEV fillets, respectively. Furthermore, the average purchase intent score for the NORM fillets (3.6) was significantly higher ($P < 0.05$) than those with 2 degrees of white striping (2.4 and 2.5, respectively), suggesting that the consumers were more likely to buy NORM fillets. Over 50% of the consumers indicated that they would probably/definitely not buy MOD or SEV fillets. The open-ended comments revealed the major reasons for the dislike of the white striped meat were that the fillets looked more fatty or marbled and/or that they thought the meat would be “tough.” The results of the study suggest that the white striping does affect the consumer acceptance based on the appearance of the fillets.

Key Words: white striping, consumer acceptance, broiler fillets