

Celltiter proliferation assay (Promega, Madison, WI). In replicate cultures, supernatants were removed and IgM production determined using an ELISA for pig IgM. ConA induced a dose-dependent increase ($P < .05$) in lymphoproliferation with maximal effects at 1.25 $\mu\text{g/ml}$. Although not effecting basal proliferation, DEX inhibited ($P < .05$) ConA-induced lymphoproliferation. In contrast, DEX inhibited ($P < .05$) IgM production at low ConA concentrations (0.6 $\mu\text{g/ml}$), but was unable to suppress IgM production at higher concentrations (1.25 $\mu\text{g/ml}$). Compared to studies in other species (mouse), DHEAS did not effect pig lymphocyte proliferation at any of the concentrations employed in this study. Similarly, DHEA (10^{-6}M) did not effect ($P > .05$) ConA-induced lymphoproliferation, IgM production or modulate the suppressive effects of DEX on lymphoproliferation. However, the addition of DHEA did reduce ($P < .05$) the suppressive effects of DEX on IgM production. These results indicate DHEA may be beneficial to reduce the suppressive effects of glucocorticoids on immune function. In addition, the ability of DHEA to modulate lymphocyte function combined with the apparent lack of activity of DHEAS supports the hypothesis that in vivo effects of DHEAS on lymphocyte function are dependent on sulfatase activity in other cells.

Key Words: Dehydroepiandrosterone, immunity, pig

188 Nitric oxide effects on rats fed an endophyte-infected seed diet. H. Al-Tamimi*, D. Spiers, and M. Ellerseick, *University of Missouri, Columbia.*

Fescue toxicosis impacts a wide sector of the livestock industry. Affected animals often experience increased hyperthermia during the summer. A major contributor to this problem is persistent peripheral vasoconstriction, which limits efficiency of heat loss from extremities. Nitric oxide has an opposite effect on peripheral vasculature, and might reduce effects of endophyte-infected tall fescue (EIF). Adult, male rats ($N=24$; 12 per trial; avg. bwt = 264.1 ± 20.1) were randomly assigned to 4 treatment groups (2×2 factorial). All animals were maintained at thermoneutrality (21°C) for 4 days followed by 20 days exposure to heat stress (31°C). Treatment diets began after 5 days at 31°C . Endophyte-free diet was fed to control and nitric oxide donor animals (120mg molsidomine/ml drinking water; M). Similar groups were fed EIF diets at 160 μg ergovaline/kg BW/day. Body weight, feed and water intakes were recorded daily. Core body temperature (Tcore) was monitored on an hourly basis using implanted telemetric transmitters (Mini-Mitter, Inc.). Serum was collected on the last day for blood profile analysis. Ingesting EIF increased Tcore at night ($P < .07$), and tended ($P = .13$) to raise it during the day compared to animals ingesting EIF-free diets. In contrast, M-treated animals had significantly ($P = .0001$) lower Tcore at night compared to M-free animals. Moreover, animals treated with combination of EIF and M had lower ($P = .003$) Tcore during the night than animals ingesting EIF alone. Feed intake of all animals decreased ($P = .0001$) at 31°C . Ingesting EIF caused a significant reduction in daily feed intake ($P = .003$),

daily gain ($P = .0001$) and feed efficiency ($P = .0001$). Even though molsidomine had no effect ($P > .47$) on these three variables, it significantly ($P < .02$) reduced daily water intake compared to M-free treated animals. The EIF diet caused a significant reduction in serum cholesterol and amylase ($P < .03$) levels, as well as serum alkaline phosphatase ($P < .07$) and phosphorus ($P < .05$). Results from the current study confirms increased hyperthermia due to EIF-ingestion. It also suggests that nitric oxide has an alleviating-effect on heat stress. Further studies are needed to examine this effect on livestock.

Key Words: Fescue toxicosis, Rat, Nitric oxide

189 Role of energy balance in the ability of lactating cows to respond to an intramammary infusion of endotoxin. K. H. Perkins, J. S. Liesman, and M. J. VandeHaar*, *Michigan State University, East Lansing.*

Dairy cows are in negative energy balance (NEB) around the time of parturition. This may contribute to the increased incidence of infectious diseases such as mastitis observed at this time. We hypothesized that cows in negative energy balance (NEB), compared to those in positive energy balance (PEB), would be less able to respond to and recover from an experimentally induced inflammatory response. To test this hypothesis, primiparous Holstein cows in early lactation (81 to 123 DIM) were placed on a restricted diet (NEB; $n=7$) or fed ad libitum (PEB; $n=7$) for 2 weeks. The NEB cows were fed at 80% of their predicted energy requirement with feed intake adjusted every 3 d. During wk 2 of the study, cows in NEB consumed 13 kg DM / d and produced 28 kg of milk / d resulting in calculated EB of -9 Mcal/d. Cows in PEB consumed 22 kg DM per day and produced 33 kg of milk / d for a calculated EB of 4 Mcal/d. At the end of the 2-week period one mammary quarter of each cow was infused with 100 μg of lipopolysaccharide (endotoxin) to generate an inflammatory response. From 0 to 6 h post-infusion, blood leukocytes decreased from 10^7 / ml to 3×10^6 / ml and recovered within 24 h. From 0 to 12 h, milk somatic cells in the infused quarter increased from 10^5 / ml to 7×10^6 / ml and remained elevated for at least 48 h, indicating trafficking of leukocytes from the circulation into the infused quarter. Dietary treatment had no effect on blood or milk cell numbers. Body temperature increased to 40.5°C by 6 h for all cows and returned to normal within 24 h. However, the initial increase in body temperature and subsequent decrease was more rapid in the PEB than NEB cows ($P = 0.03$). Respiration and heart rate increased in response to the infusion, and the increase was greater for NEB cows. In addition, the respiration rate of PEB cows returned to normal more rapidly ($P = 0.1$). We suggest that cows in positive energy balance may be able to respond to and recover from an inflammatory agent more rapidly than those in negative energy balance.

Key Words: energy balance, inflammation, mastitis

BEEF SPECIES

190 Age of calf at weaning of spring-calving beef cows and the effect on cow and calf performance and production economics. R. J. Rasby*¹ and R. T. Clark¹, ¹*University of Nebraska, Lincoln.*

Over a 5-yr period, spring calving cows were used in a carry-over design experiment to evaluate effects of calf age at weaning on cow and calf performance and economics. Management groups were early ($n = 60$, calf age 150 d, EW), traditional ($n = 60$, calf age 210 d, NW), and late ($n = 60$, calf age 270 d, LW). Cow body condition score (BCS) and weight at the last weaning date were different ($P < .05$) for EW (5.8, 583 kg), NW (5.5, 560 kg), and LW (5.2, 541 kg) groups. Pregnancy rate among groups were similar. Days on feed for groups differed ($P = .001$) and was 247 for EW, 204 for NW, and 164 d for LW steers. Average daily gain in the feedlot differed ($P = .01$) among groups and averaged 1.5 kg for LW, 1.4 kg for NW, and 1.3 kg for EW steers. Hot carcass weight was greater ($P = .01$) for EW (328 kg) and NW (332 kg) steers compared to the LW (321 kg) steers and fat depth was greater ($P = .05$) for EW and NW compared to LW steers. Percentage grading at least USDA Choice was greater ($P = .05$) for the EW compared to NW and LW groups. When carcass data for the NW and LW steers were adjusted to the same fat depth of EW steers, carcass data among groups were similar. Net income per steer at slaughter was greater (P

$< .001$) for the EW (\$75.36) and NW (\$62.16) steers compared to the LW (\$10.09) steers. Adjusting the carcass data to similar a backfat reduced differences in net income. Replacement heifer costs were greater ($P < .001$) for the EW compared to NW and LW heifers. Annual cow costs were greater ($P < .10$) for the LW (\$443.45) compared to the EW (\$410.09) and NW (\$421.35) groups. Breakeven for each system calculated on a steer financial basis was lowest for the NW and LW groups and greatest ($P = .08$) for the EW group. Age of the calf at weaning affects cow weight and BCS. Net income in each management system is influenced by cow costs, mo of the year and weight that steers calves are purchased into the feedlot and finished steers are sold, mo of the year cull cows are marketed, and replacement heifer development costs.

Key Words: Cow/calf Performance, Systems, Economics

191 The effects of age at weaning and prepubertal dietary management on performance of crossbred beef heifers. W. J. Sexten*, D. B. Faulkner, and F. A. Ireland, *University of Illinois, Urbana.*

Simmental \times Angus spring-born heifers ($n = 166$) were utilized in a 2×2 factorial arrangement to evaluate age at weaning and prepuber-

tal dietary treatment on performance, reproductive and maternal traits. Heifers were either early weaned (EW) at d 71±15.22 days of age or normal weaned (NW) at d 212 then placed on one of two prepubertal dietary treatments, restricted corn-based (RC) or forage based followed by *ad libitum* intake of identical concentrate diet (FOR). The corn-based diet was formulated to provide 3.064 Mcal NE_m/kg DM, 2.337 Mcal NE_g/kg DM and 17.3% CP (DM basis). Treatments ended at d 420 and heifers were artificially inseminated four days later. No differences in d 420 weights, hip heights (HH), or pelvic areas (PA) were attributed to age at weaning. The NW heifers were heavier, and had greater HH at d 507 (palpation) ($P < .05$). Restricted corn heifers were heavier (348.0 kg) had greater HH (122.62 cm) and greater PA (177.6 cm²) at d 420 than FOR heifers (305.3 kg), (119.12 cm) and (160.5 cm²) ($P < .05$). The RC heifers maintained a weight, and HH advantage at d 507 ($P < .05$). Feed efficiencies were greater for EW heifers (.203) compared to NW heifers (.175) and greater for RC heifers (.205) compared to FOR heifers (.177) ($P < .05$). No differences were observed in total ADG or ADG for the feeding period due to age at weaning. Total ADG was greater ($P < .05$) for RC heifers (.756 kg/d) versus FOR heifers (.630 kg/d). Conversely, FOR heifers had greater ADG during the feeding period (.996 kg/d) compared to RC heifers (.809 kg/d) ($P < .05$). There were no differences in percent cyclic at days 311, 380 or 420 between treatments. Differences in pregnancy at palpation (83 days post AI) attributed to diet were observed, where 85.23% of RC heifers were bred compared to 58.98% of FOR heifers ($P < .05$). No differences in mortality were observed, but FOR heifers experienced 11.79% greater incidence of morbidity ($P < .05$). Early weaning may provide an alternative method for replacement beef heifer development, however heifer performance can be influenced by prepubertal dietary treatment.

Key Words: Early weaning, Heifer development

192 Early-weaning and nutritional management affect feedlot performance, carcass merit, and rate of intramuscular and subcutaneous fat deposition of Angus x Simmental heifers. A. E. Wertz*¹, L. L. Berger¹, P. M. Walker², D. B. Faulkner¹, and F. K. Mc Keith¹, ¹University of Illinois, Urbana, ²Illinois State University, Normal.

Early-weaned Angus x Simmental heifers were used to determine the effects of post-weaning nutritional management on feedlot performance, carcass merit, and rate of intramuscular and subcutaneous fat deposition of heifers fed for a high quality market. Sixteen heifers were weaned at 73±5.9 d of age and grazed on endophyte-infected tall fescue for 19 months prior to entering the feedlot (EWP). Eighty heifers from the following year's calf crop were weaned at 71±5.9 d of age and allotted to either *ad libitum* haylage-soybean hulls (EWH) or limit-fed concentrate (EWC) to achieve a similar rate of gain as the EWH heifers. Following 119 d on the growing diets, 16 EWC and 16 EWH calves were paired based on weight and growth rate and individually fed during the finishing period along with the EWP heifers. Ultrasound measurements of subcutaneous and intramuscular fat were recorded at ~60-d intervals throughout the finishing period. These data were regressed over time to evaluate the pattern of intramuscular and subcutaneous fat deposition as affected by nutritional management. Despite similar rate of gain, EWC calves gained more efficiently ($P \leq .05$) than EWH calves in the feedlot. Heifers finished as two-year-olds (EWP) tended ($P \leq .12$) to gain faster but gained less efficiently ($P \leq .01$) compared to EWC heifers finished as calves. The rate of subcutaneous and intramuscular fat deposition was similar among EWC and EWH heifer calves. Subcutaneous fat intercept was higher ($P \leq .01$) and deposition was quadratic ($P \leq .01$) for two-year-old heifers, compared to heifer calves that deposited subcutaneous fat both linearly ($P \leq .01$) and quadratically ($P \leq .01$). Intramuscular fat intercept was also higher ($P \leq .01$) for two-year-old heifers, however, heifers finished as calves deposited intramuscular fat at twice ($P \leq .01$) the rate of the two-year-olds. These data suggest that heifers finished as calves tended to gain slower but gained more efficiently in the feedlot and deposited intramuscular fat at twice the rate of two-year-old heifers.

Key Words: Early-weaned heifers, Marbling, Ultrasound

193 Weaning management strategies for steer calves. R. S. Wells, D. B. Faulkner, and F. A. Ireland, University of Illinois at Urbana/Champaign, Illinois.

This study was designed to evaluate the effects of limit feeding on performance and carcass traits of early weaned steers. Angus cross steers

(144 hd, 77±18 d, 89±16.9 kg) were allotted to four treatments: early-weaned (EW), early-weaned limit fed (d 0-128, EWLIM), creep fed (d 0-128, CF), or normal weaned (NW). Pens consisted of 7 heep per pen and 6 pens per treatment. All treatments were placed on a common finishing diet at d 128. The EW steers had a higher rate of gain than did the EWLIM steers during the finishing phase ($P = .03$, 1.15 vs. 1.04 kg). The CF steers had higher ADG than the EWLIM steers during the finishing phase ($P = .0001$, 1.29 vs. 1.04 kg) and the NW steers had a higher ADG than the EW steers ($P = .0001$, 1.33 vs. 1.15 kg). The EWLIM steers high the best feed efficiency of all treatments during the finishing phase ($P < .03$, .208 vs. .173, .175, .170, respectively for EW, CF, NW). The EWLIM steers consumed the least amount of total concentrate during the finishing phase ($P < .04$, 1842, vs. 2308, 2125, 1901 kg/pen, respectively for EW, CF, and NW). Back fat was used as a covariate for carcass data analysis. No differences were observed for marbling (900 = select, 1000 = choice, and 1100 = av. choice) for all treatments (1142, 1146, 1104, 1163, respectively). No differences were observed for REA across all treatments (76.43, 75.15, 77.22, 77.12 cm², $P > .05$, respectively). The NW steers had the highest percentage of kidney, pelvic, and heart fat ($P < .005$, 2.69 vs. 2.07, 2.39, 2.05 respectively for EW, EWLIM, and CF). No differences of HCW were observed across all treatments (285, 288, 289, 294 kg, $P > .05$, respectively). Feed efficiency and ADG of EW steers was lower than previously observed during the first two periods of the study. This may have depressed initiation of marbling for the EW treatment could possibly explain why there were no differences in this study. This is in contrast to findings of other early-weaning studies. In this study, EWLIM steers had the best feed efficiency and second highest marbling score.

Key Words: Early Weaning, Beef, Steers

194 Implant strategies in an integrated beef production systems. S. K. Duckett*¹ and J. G. Andrae¹, ¹University of Georgia, Athens.

Anabolic implants are routinely used to lower the cost of beef production. On average, implants increase average daily gain by 18%, improve feed efficiency by 8%, and increase carcass weight by 5% in the feedlot. Implants have also been implicated in the reduction of carcasses grading Choice. However, the change in marbling score with implanting is variable and appears related to increases in ribeye area that accompany implant administration. Other factors related to implant effects on marbling are: days to harvest after last implant (+) and number of implants used (-). Numerous implant products and combinations are available today; however as systems are devised for integrated beef production, implant strategies must be optimized to reduce cost of beef production and minimize effects on end-product quality. Specifically, the production system utilized and the time of year that the cattle are marketed are most important in determining the implant strategy used. In calf-fed systems where animals are harvested in early spring at 12 to 14 mo. of age when the Choice/Select spread is low, the implant strategy can be very aggressive to include several implants from 2 mo. of age to harvest. Conversely, in systems where cattle are backgrounded on forages and harvest occurs in summer months when Choice/Select spread is high, implant strategies should be more conservative to reduce losses due to changes in product quality. In summary, implant strategies for integrated beef production systems should be determined based on the time of marketing to optimize returns for reducing feed costs and maintaining carcass quality.

Key Words: Beef, Implant

195 A comparison of lifetime implant strategies on production and carcass characteristics in steers. R.H. Pritchard¹, K.W. Bruns*¹, and C.P. Birkelo², ¹South Dakota State University, Brookings, ²Schering Plough Animal Health.

Crossbred steers from two sources (n=310) were used to evaluate the influence of lifetime implant strategies (LIS) on production efficiencies and carcass traits. Implants, if used, were administered at: 2 mo of age, weaning, end of backgrounding phase, and 70 d into the finishing phase using four LIS as follows: Control (C), no implants used; Low Potency (LP), Ralgro, Ralgro, Ralgro, Magnum; Intermediate Potency (IP), Ralgro, Ralgro, Ralgro, Magnum plus Component TS; or High Potency (HP), Synovex C, revalor-g, Synovex-S, and revalor-s, respectively. Cattle were reared on native range pre-weaning. Days on feed were constant within source and across LIS. Backgrounding (100 d) and

finishing (132 or 150 d for sources 1 and 2) diets contained .88 and 1.35 Mcal NE_g/kg. Treatment did not affect BW at weaning (233+3.0 kg) or after backgrounding (321+3.6 kg), although backgrounding ADG was higher (P<.05) for LP and HP (.98 and 1.01 kg) than C (.93 kg). During finishing, implanting (C vs implanted) improved (P<.05) ADG (1.40 vs 1.61 kg), DMI (9.97 vs 10.69 kg) and G/F (.156 vs .167). Dressing percent was greater (P<.05) for HP vs C, LP, and IP (61.7, 62.1, 61.9, 62.9). Carcass weight (318, 337, 341, 348 kg), and LDA (79.0, 80.3, 82.3, 84.5 cm²) increased (P<.05) linearly with increasing LIS potency. Control steers had less (P<.05) rib fat than implanted steers (.21 vs .24 cm). Marbling scores (5.68, 5.54, 5.38, 5.38) were lower (P<.05) for IP and HP treatments than C. Implanting advanced (P<.05) bone maturity scores over C (A⁴⁷ vs A⁶¹). Shear Force (4.02, 3.84, 4.06, 4.15 kg) was greater (P<.05) for HP vs LP, but LIS did not cause a linear shift (P>.10) in shear force. There were no source x LIS interactions detected for carcass traits. The results of this study suggest that lifetime implant strategies can be used to optimize production efficiencies for a specific set of conditions without compromising carcass acceptability.

Key Words: Beef, Implants, Tenderness

196 Implant strategy influence on rate of marbling, carcass characteristics, longissimus tenderness, and blood metabolites of early-weaned crossbred steers. R. E. Robb*, D. B. Faulkner, and F. A. Ireland, *University of Illinois, Urbana.*

Early-weaned Angus x Simmental steers (n = 282; 56 ± 19 d of age) were blocked by body weight and randomly allotted to implant treatments (trt) to evaluate the effects of implant strategy on performance, rate of marbling, carcass characteristics, longissimus tenderness, and blood metabolites. Implants used were ;Component E-S (E-S; 200 mg USP progesterone + 20 mg estradiol USP, Component TE-S (TE-S; 120 mg trenbolone acetate + 24 mg estradiol USP), and Encore (43.9 mg estradiol). Treatments consisted of three successive implants administered at d 0, 98, and 196: A) Non-implanted control B) E-S/E-S/TE-S, C) E-S/TE-S/E-S, D) TE-S/E-S/E-S, E) TE-S/TE-S/TE-S, and F) Encore/TE-S. Calves were allowed ad libitum access to a high concentrate finishing diet for 327 d. Ribeye area (REA), 12th rib fat (RF), and marbling scores (MS) were monitored by ultrasound on d 146, 195, and 242. A sub-sample of longissimus muscle (LM) steaks (n = 72) taken from the 12th and 13th ribs were aged 4 d, and then prepared for Warner-Brazler shear force evaluation. Each steak was classified as "tender," "intermediate," or "tough" if its LM shear value was < 6 kg, 6 to 9 kg, or >9 kg, respectively. Control steers had lower DMI and lower ADG than all other trt (P < .05). Trt E improved gain:feed compared to B, C, and D (P < .05). Ultrasound MS were not different among trt. In addition, no differences were observed between control and all other trt for RF, MS, percent cooking loss, average shear values, moisture, extractable fat, yield grades, and quality grades. However, control steers had lower hot carcass weights, smaller REA, and greater kidney, pelvic, heart fat than all other trt (P < .05). Trt B resulted in greater REA than trt C and D (P < .05) and more carcasses graded average choice than trt D (P < .05). Trt B and F had MS that were not different, however, F resulted in 47% more "tender" steaks than B (P < .05). Trt E was more efficient (P = .04) and resulted in HCW, REA, tenderness data that was not different from B, C, and D, but reduced MS and quality grade when compared to B, C, and D (P < .05).

Key Words: Early-wean, implant, beef

197 Experiences of the study for sustainable development of beef cattle production. F. Szabo*, E. Zele, P. Polgar, Z. Wagenhoffer, and Z. Lengyel, *University of Veszprem, Georgikon Faculty of Agriculture, Department of Animal Husbandry, Hungary.*

On-farm research was carried out for five years on peat bog soil pasture in Hungary for sustainable development of beef cattle production. The

aim of the study was to gain some basic data about herbage production from peat bog soil pastures and animal performance resulting from their use by beef cows herds of different genotypes. Monitoring and study was carried out in three farms with both native and seeded grasslands for suckler cows. Each of the herds was composed of Hungarian Simmental (HS), Hereford (HE), and HSxHE crossbred cows (F1 and R1 generations, number from 80 to 310 heads/farm/year/genotype). Herds were kept outdoors all year round and cows mated in summer, the spring born calves being weaned in autumn. Significant differences were observed in reproduction and weaning performances between HS and HE cows. Calving rate was 79.3%, and 82.6%, survival rate to weaning 97.6% and 91.3%, and 205-day weaning weight 193.2kg and 173.6kg respectively. There were significant heterosis effect in the case of crossbred cows (F1, R1) in both calving rate (+ 9.7 % and + 5.7% respectively), and the survival rate of F1, R1 and R2 calves (+6.3%, +3.5%, +0.7% respectively). Annual herbage production differed significantly between years, farms and pasture types. The range in variation was from 2.82 to 3.42 tonnes/ha for dry matter, from 27.8 to 34.4 thousand MJ/ha for metabolisable energy and from 3.85 to 6.15 kg/ha for crude protein. Calculated from the average dry matter annual production yield and cows requirements, the annual carrying capacity of the pastures studied ranged from 55 cows/100ha for the large size HS to 66 cows/100ha for the smaller size HE. The highest calf crop (50.7 weaned calves and 9.6 tonnes total weaning weight) was obtained in the case of F1 cow herds while the lowest (42.6 and 8.23 respectively) in the case of HS.

Key Words: beef cattle, pasture yield, stocking rate

198 Effects of early-weaning and nutritional management on feedlot performance, carcass merit, and rate of intramuscular and subcutaneous fat deposition in Angus and Wagyu heifers. A. E. Wertz*, L. L. Berger¹, P. M. Walker², D. B. Faulkner¹, and F. K. McKeith¹, ¹*University of Illinois, Urbana*, ²*Illinois State University, Normal.*

Twelve Angus (A2Y) and 12 Wagyu-cross (1/2 Wagyu x 1/2 Angus) (W2Y) were weaned at 180 d of age and grazed on endophyte-infected tall fescue for 16 months prior to entering the feedlot. Twelve Angus (AC) and 12 Wagyu-cross (WC) heifers from the following year's calf crop were weaned at 142 ± 4.3 d of age and immediately adjusted to an 80% concentrate ration. All heifers were individually fed a common finishing diet until it was estimated that 50 percent of their respective group would grade USDA low prime or better. Ultrasound measurements of subcutaneous and intramuscular fat deposition were recorded at ~60-d intervals throughout the finishing period. These data were regressed over time to evaluate the pattern of intramuscular and subcutaneous fat deposition as affected by breed and post-weaning nutritional management. As two-year-olds, Angus and Wagyu-cross heifers gained at a similar rate and efficiency. Subcutaneous fat increased linearly (P<.01) during the finishing period for both A2Y and W2Y heifers. However, A2Y heifers had a higher subcutaneous fat intercept (P<.01) than W2Y heifers. Wagyu two-year-olds had a higher intramuscular fat intercept (P<.01) compared to A2Y heifers and intramuscular fat deposition increased both linearly and quadratically (P<.01) for W2Y heifers. In contrast, the increase in intramuscular fat was linear (P<.01) among A2Y heifers. Wagyu heifer calves gained at a similar rate but less efficiently (P<.05) than AC. Subcutaneous fat deposition was similar among AC and WC and increased in both a linear and quadratic (P<.01) manner. Intramuscular fat deposition increased linearly (P<.01) among both the AC and WC heifers. However, WC had a higher (P<.01) intramuscular fat intercept than AC. Wagyu genetics improved intramuscular fat deposition. However, efficiency of gain was compromised among Wagyu heifer calves finished in the accelerated program.

Key Words: Wagyu, Early-weaned, Ultrasound