

Beef Species: Beef Production

318 Relationship between postweaning RFI in heifers and intake and productivity of mid-gestation beef females. A. N. Hafila^{*1}, G. E. Carstens¹, T. D. A. Forbes², J. C. Bailey¹, J. T. Walter¹, J. W. Holloway², and J. G. Moreno¹, ¹Texas A&M University, College Station, ²Texas AgriLife Research, Uvalde.

Residual feed intake of growing cattle has been associated with between-animal variation in maintenance energy requirements. The objective of this study was to determine if RFI classification of beef heifers affects DMI and productivity of mid-gestation females. RFI was determined in 2 groups of growing Bonsmara heifers during 2 yr (n = 62 and 53/yr), and heifers with the lowest (n = 12/yr) and highest (n = 12/yr) RFI were retained for breeding. Nineteen second-parity cows from trial 1 and 23 primiparous heifers from trial 2 were used in this study. Cows and heifers were fed a chopped hay diet (ME = 2.11 Mcal/kg DM) in separate pens equipped with GrowSafe bunks to measure individual intake and feeding behavior. BW were measured at 7-d intervals, and BCS and ultrasound measurements of REA and rump fat thickness obtained on d 0 and 77 of the study. No interactions between RFI classification and age were found to be significant. Heifers had lower ($P < 0.05$) initial BW (505 vs 474 ± 9 kg), ADG (0.66 vs 0.47 ± 0.05 kg/d), and initial hip height (132 vs 129 ± 0.95 cm), but similar DMI (10.37 ± 2.66 kg/d) compared with cows. Heifers and cows had similar initial rump fat thickness (1.10 ± 0.32 cm) and BCS (5.1 ± 0.4). Bunk visit (BV) frequency was higher ($P < 0.0001$) in heifers than cows (142 vs 93 ± 7 events/d), but BV duration (174 ± 61 min/d) was not affected by age. Meal frequency was similar for heifers and cows, but heifers had longer ($P < 0.05$) meal duration (427 vs 387 ± 14 min) than cows. Females classified as having low RFI had lower ($P < 0.01$) DMI (9.00 vs 11.6 ± 0.54 kg/d) compared with females with high RFI, but initial BW and ADG were similar during the trial. Likewise, RFI classification did not affect initial or final rump fat thickness or BCS. BV frequency was similar, but BV duration was less ($P < 0.001$) for females with low compared with high RFI. Meal frequency and duration were not affected by RFI classification. Females classified as having low RFI as heifers continued to consume 22% less feed than females classified as high RFI while maintaining the same BW and BCS during the 2nd trimester of gestation.

Key words: residual feed intake, feeding behavior

319 Using a mechanistic nutrition model to identify efficient beef cows under grazing conditions. B. M. Bourg^{*1}, L. O. Tedeschi¹, A. D. Aguiar⁵, F. R. B. Ribeiro², J. Genho³, R. R. Gomez¹, D. Delaney⁴, and S. Moore⁴, ¹Texas A&M University, College Station, ²Texas A&M University, Commerce, ³Eldon Farms, Woodville, VA, ⁴King Ranch, Kingsville, TX, ⁵University of Florida, Gainesville.

The cow/calf phase of production represents a large expense involved in the cost of producing beef, and efficient beef cows use less resource to obtain the same outcome in a sustainable environment. The objective of this study was to utilize a mechanistic nutrition model to estimate ME requirement (MER) of grazing cows based on changes in cow BW and fatness measurements (body condition score, BCS) along with calf age and BW, as well as forage quality and quantity. In addition, energy efficiency index (EEI), which is computed as MER divided by calf weaning BW, was used to rank cows within a herd based on their efficiency of utilizing available forage to meet their maintenance requirements and support calf growth. Data were collected from one herd of approximately 140 Santa Gertrudis cows over a 4-year period, and

analyzed per calving interval, conception to weaning. PROC CORR of SAS was used to determine phenotypic relationships between model-predicted peak milk and EEI with cow and calf performance and temperament data (exit velocity or chute score). Moderate significant ($P < 0.05$) correlations of EEI were found ($r = 0.51$) between year 1 and 2, year 1 and 3 ($r = 0.46$), year 2 and 3 ($r = 0.43$), year 1 and 4 ($r = 0.39$), year 2 and 4 ($r = 0.53$), and year 3 and 4 ($r = 0.57$), suggesting that the EEI may be consistently predicted for cows across years. A negative relationship was found between predicted peak milk and EEI, and model predicted values were also strongly correlated ($P < 0.05$) across years. Peak milk and EEI were not correlated ($P > 0.1$) to the collected temperament measures. Relationships between EEI and peak milk with ultrasound fat measures indicated that more efficient cows, with a lower EEI, were leaner, and cows with a higher peak milk were also leaner. Cow BCS was also positively correlated to both EEI and peak milk. Preliminary genetic assessment of EEI and MER, indicated additive genetic heritability (h^2) of EEI and MER of 0.58 and 0.05, respectively. In conclusion, the model's estimation of EEI might be moderately heritable and repeatable across years, and that efficient cows might have greater peak milk and be leaner.

Key words: modeling, efficiency, sustainability

320 Relationship among lifetime measures of body weight and frame size in beef cows. A. C. Echols^{*}, D. A. Fiske, M. L. Wahlberg, and S. P. Greiner, Virginia Polytechnic Institute and State University, Blacksburg.

The beef cattle industry has placed increased focus on mature cow size as a result of its influence on production efficiency and profitability. The objective of this study was to evaluate relationships among lifetime measures of growth and frame size for commercial beef females in a pasture-based beef production system in the Appalachian region of the United States. Measurements of BW, hip height (HH), BCS, and calculated frame score (FS) were recorded at weaning (WN), breeding (BR), 2 (2YR), and 4 (4YR) yr of age for 232 Angus-cross females born 2004 through 2008. Mean age at WN, BR, 2YR, and 4YR were 230 (SD = 44), 395 (SD = 25), 805 (SD = 19), and 1745 d (SD = 20), respectively. Body weight at 2YR and 4YR were adjusted for BCS. Frame score at WN was related to FS at BR ($r = 0.73$, $P < 0.001$), and 2YR ($r = 0.47$, $P < 0.001$), but not at 4YR ($P = 0.61$). Frame score at BR was related to FS at 2YR ($r = 0.67$, $P < 0.001$) and 4YR ($r = 0.62$, $P < 0.001$), and a strong relationship existed between FS at 2YR and 4YR ($r = 0.83$, $P < 0.001$). Similarly, body weight at WN was correlated to BW at BR ($r = 0.76$, $P < 0.001$), 2YR ($r = 0.56$, $P < 0.001$), and 4YR ($r = 0.51$, $P < 0.001$). Body weight at BR was correlated to 2YR ($r = 0.56$, $P < 0.001$) and 4YR ($r = 0.65$, $P < 0.001$). Body weight and FS were related at WN ($r = 0.57$, $P < 0.001$), BR ($r = 0.64$, $P < 0.001$), 2YR ($r = 0.53$, $P < 0.001$), and 4YR ($r = 0.48$, $P < 0.001$). Frame score and BW differed ($P < 0.001$) by birth yr. Mean FS at WN, BR, 2YR, and 4YR were 4.77 (SD = 0.72), 4.79 (SD = 0.84), 5.08 (SD = 0.80), and 5.47 (SD = 0.66), respectively, and did not differ ($P = 0.34$) over time for the same animal. Hip height and BW peaked at 4YR ($P < 0.001$). While BW and FS are related to the same measures taken at maturity, measurements taken at BR appear to be superior to those taken at WN when used to predict mature size of beef cows.

Key words: beef cow, frame score, mature size

321 A mineral survey of Louisiana beef cow/calf production systems. J. Rowntree^{*1}, K. Guidry², G. Scaglia², G. Gentry², and L. Southern², ¹Michigan State University, East Lansing, ²LSU Agricultural Center, Baton Rouge, LA.

The purpose of this research was to determine the state and regional mineral status of Louisiana forages and beef cattle. Louisiana beef cattle operations ($n = 25$) were sampled and divided into 7 geographical regions, including the northwest (NW), northeast (NE), central (CE), southwest (SW), south central (SC), Florida parishes (FP) and southeast (SE) regions. Over a 2 year period, water and soil samples were collected from each operation annually, forage samples were collected quarterly in Aug to Sep, Nov to Dec, Feb to Mar and May to June and bovine serum samples were collected twice annually in the fall and spring seasons. The highest ($P < 0.05$) average regional water K and S concentrations were observed in the SE region and water Ca and Mg concentrations were the highest ($P < 0.05$) in the NE, CE and SE regions. Similar to water, soil Ca, Mg and K concentrations in our study, were higher ($P < 0.05$) in the SE compared with all other regions. Soil Cu concentrations were below critical levels in the CE region and all soil Zn concentrations, except the SE region, were lower than reported critical levels indicating soil deficiency. The average forage concentration for each mineral were: Ca (0.42%), P (0.28%), Mg (0.21%), K (1.83%), Na (0.10%), S (0.32%), Cu (8.12 ppm), Fe (323.46 ppm), Mn (254.85 ppm) and Zn (41.29 ppm). In addition, only mean forage Cu concentrations were lower than minimum requirements and regional forage K (NW region), Mg (FP region), Na (CE region) and S (NW and SE regions) concentrations were higher ($P < 0.05$) than other regions. The average regional serum K concentration in the NE region was higher ($P < 0.05$) than all other regions. Average bovine serum mineral concentrations in Louisiana were: Ca (9.02 mg/100 mL), P (13.62 mg/100 mL), Mg (1.92 mg/100 mL), K (21.66 mg/100 mL), Na (303.30 mg/100 mL), S (103.31 mg/100 mL), Cu (0.63 μ g/ml), Fe (7.44 μ g/ml), Zn (1.28 μ g/ml), Mn (8.08 ng/ml) and Se (64.48 ng/ml). Furthermore, of these minerals, serum Mg, Na, Cu and Mn concentrations were lower than critical levels, indicative of deficiency.

Key words: beef cattle, forages, mineral

322 Finishing steers and bulls with high-vitamin E diets: Effect on pH and tenderness of beef. C. Reyes, C. Fuentes, and R. E. Larrain^{*}, Pontificia Universidad Catolica de Chile, Santiago, Chile.

Release of glucocorticoids to the blood stream during stress may mobilize energy reserves in muscle. Reduced glycogen depots at the time of slaughter may lead to meat pH-values above 5.8, and meat with elevated pH is less tender. Vitamin E reduced activation of the hypothalamic-hypophysial-adrenocortical axis in farm animals. Thus, the objective of this study was to test if bovines finished with a high vitamin E diet produce beef with lower pH and increased tenderness. Thirty-eight steers and bulls were blocked by sex, then grouped in 16 pens of 2 or 3 animals of similar BW, and randomly assign to one of 2 treatments: a control diet designed to provide 60 IU vitamin E \cdot animal⁻¹ \cdot d⁻¹ and the control diet supplemented with 2,000 IU vitamin E \cdot animal⁻¹ \cdot d⁻¹. Each pen was considered an experimental unit ($n = 8$). Feed was offered once daily to each pen to provide ad libitum access to feed. Initial and final BW were the average of 2 weights before feeding in consecutive days. After 123 d on feed, animals were transported for about 1.5 h to a local abattoir and harvested approximately 8 h after arrival. Beef pH was measured 48 h post-mortem in the longissimus muscle, using a spear-tip pH meter inserted between the 12th and 13th rib. Tenderness

was evaluated in 1×1 cm strips, cut perpendicular to the fiber axis, using a Warner-Bratzler shear machine. Factors in the model were sex and treatment, and initial BW was included as covariate. Differences were considered significant when ANOVA had $P < 0.05$. There were no differences in ADG (1.16 ± 0.063 kg/d, $P = 0.49$), carcass yield ($55.8 \pm 0.4\%$, $P = 0.56$), pH (5.87 ± 0.09 , $P = 0.96$) and WBS (2.17 ± 0.12 kg, $P = 0.54$) between treatments. High mean pH value of beef was due to 3 pens having an average pH above 6.0. All of these pens contained bulls, 2 from the control and 1 from the vitamin E treatment. We concluded that 2,000 IU vitamin E \cdot animal⁻¹ \cdot d⁻¹ produce no changes in pH and tenderness of beef.

Key words: vitamin E, pH, tenderness

323 Effect of beef cow age and calf sex on model-predicted energy efficiency. M. J. Baker^{*1}, L. O. Tedeschi², D. G. Fox¹, and G. Jacimovski¹, ¹Cornell University, Ithaca, NY, ²Texas A&M University, College Station.

The identification of efficient beef cows under grazing conditions is important to ensure competitiveness and profitability. As the on-farm direct measurement of DMI is cost-prohibitive, a model (Cattle Value Discovery System, CVDSbc) was developed to predict an energy efficiency index (EEI, Mcal/kg) that is based on the predicted ME required (MER, Mcal/d) by the cow or cow + calf within a reproductive cycle divided by the calf weaning weight (WW, kg). The objective of this study was to evaluate the impact of cow age and calf sex on the EEI with or without adjusting WW for cow age and calf sex as per Beef Improvement Federation Guidelines. Data from predominantly Angus x Simmental spring calving cows ($n = 37$, BW = 628 kg) and monthly forage quality were used. The BW at 28% empty body fat (FBW, kg) was assumed 620 and 520 kg for steer and heifer calves, respectively. The CVDSbc computes MER based on cow and calf characteristics and forage quality, and iterates cow peak milk (PK, kg) until the predicted WW matches the observed WW. The statistical analyses were conducted with PROC GLM and PROC REG assuming cow age and calf sex as fixed factors in a completely randomized design. They were analyzed separately. When WW was not adjusted, the age of cow affected the predicted PK ($P = 0.0644$) in which 2 year-old cows tended to have a lesser PK than 3, 4 and 5 year-old cows (3.79, 5.39, 5.41, and 5.38, respectively), suggesting older cows produce more milk to support a greater ADG of the calves. The cow EEI was greater ($P = 0.049$) for heifer than steer calves (40.4 and 36.6 Mcal/kg, respectively). Similarly, the cow + calf EEI was greater ($P = 0.056$) for heifer than steer calves (42.9 and 39.2 Mcal/kg, respectively). These results were expected; at the same age steers have a greater BW which increases the dilution of the cow's MER compared with the lighter heifers. When WW was adjusted to calf sex, no differences ($P > 0.25$) were observed between age and calf sex on EEI and PK. The correlations between adjusted and unadjusted cow and cow + calf EEI were 0.896 and 0.884, respectively. These results suggest that cow age and calf sex have to be accounted for when comparing cow EEI.

Key words: cattle, modeling, selection

324 Selling prices of Arkansas beef feeder calves as affected by management practices. T. R. Troxel^{*} and B. L. Barham, University of Arkansas, Department of Animal Science, Little Rock.

The objective of this study was to determine how management factors affected the selling price of beef calves. Data were collected from January 1 to December 31, 2010 at 14 Arkansas livestock auctions. The

database consisted of 38,346 lots consisting of 79,822 head of cattle representing 19% of the total calves sold. Information was collected by experienced livestock market news reporters and included body condition, castration, horn status, fill, health, and individual or group selling. Each factor was analyzed using GLM procedures using weight as a covariate, and least-squared means were generated. All prices are based on dollars per 45.45 kg of live weight. Body condition affected selling price ($P < 0.0001$) with fat, very thin, fleshy, average, and thin calves selling for \$94.40, \$98.05, \$102.23, \$108.36 and \$110.11, respectively. Steers sold for \$6.31 more (\$116.16; $P < 0.001$) than bulls (\$109.85), and polled calves sold for \$8.03 more ($P < 0.001$) than horned calves. Heifers sold for \$102.71. Fill affected selling price ($P < 0.0001$) with gaunt, shrunk, average, full and tanked calves selling for \$114.40, \$109.65, \$106.28, \$99.41 and \$90.33, respectively. Healthy calves sold for \$108.69, which was higher ($P < 0.001$) than dead hair (\$98.43), stale (\$87.21), sick (\$62.48), bad eye(s) (\$95.38) or lame (\$68.57) calves. Calves that were announced as preconditioned sold for a higher price (\$113.57; $P < 0.001$) than healthy calves. The selling prices of calves sold as singles, groups of 2 to 5 head or groups of 6 or greater were \$107.81, \$110.52 and \$112.60, respectively ($P < 0.001$). Cattle classified as calves sold for \$110.29, which was higher than cattle classified as yearlings (\$104.81; $P < 0.001$). Beef cattle producers can greatly influence the selling prices of calves through managing calf body condition, castration, horns, fill, health and group selling.

Key words: selling price, beef calves, auctions

325 The relationship between climatic conditions and the incidence of calving. T. R. Troxel¹, M. S. Gadberry¹, D. Hubbell², and W. Kellogg³, ¹University of Arkansas, Department of Animal Science, Little Rock, ²University of Arkansas, Department of Animal Science, Batesville, ³University of Arkansas, Department of Animal Science, Fayetteville.

The object of this study was to examine the relationship of barometric pressure and maximum and minimum temperature with the incidence of calving. Calving data (2005 to 2009) from the Livestock and Forestry Station (Batesville, AR) and Savoy Research Unit (Savoy, AR) were used. All cows were multiparous, predominately Angus, and natural serviced. Both locations calved in the spring (Jan to Apr) and fall (Sep to Dec). Total calving observations were 1,547. Calving occurred on 54% of the days within the calving season. The climate data from the Fayetteville and Mountain Home, AR weather stations were obtained from the Southern Regional Climate Center, Louisiana State University, Baton Rouge and was used for the Savoy and Batesville research stations, respectively. There was a season by calving observation effect ($P < 0.05$) for all 3 climatic measurements. Spring barometric pressure on day of calving and 1, 2 and 3 d before calving was greater than corresponding non-calving dates ($P < 0.05$), but no differences were detected in the fall ($P > 0.10$). Spring maximum temperature was lower on day of calving and 1 and 3 d before calving than corresponding non-calving dates ($P < 0.05$), but fall maximum temperature was higher d 1 and 3 d before calving than corresponding non-calving dates ($P < 0.05$). Spring minimum temperature was lower on day of calving and 1, 2 and 3 d before calving than corresponding non-calving dates ($P < 0.05$), but fall minimum temperature was higher d 1, 2 and 3 d before calving than corresponding non-calving dates ($P < 0.05$). For spring-calving cows, an increase in barometric pressure and a decrease in maximum and minimum temperature were associated with calving. For fall-calving cows, an increase in maximum and minimum temperature with no barometric pressure relationship was associated with day of calving. This data suggest monitoring

weather conditions may provide an indication of calving incidences and possibly prepare producers to monitor cows.

Key words: barometric pressure, temperature, calving

326 Selling price of Arkansas beef feeder calves as affected by phenotypic expression. B. L. Barham* and T. R. Troxel, *University of Arkansas, Department of Animal Science, Little Rock.*

A study was conducted to evaluate the impact of genetic factors on the selling price of beef calves marketed through Arkansas auction barns. Data was collected on 38,346 lots consisting of 79,822 head marketed through 14 auction barns in 2010. Data collection was conducted by experienced livestock market news reporters. Information pertaining to the phenotypic expression of calf genetics included subjective identification of breed, color, and USDA frame and muscle scores. Due to the unbalanced nature of the data set, variables were analyzed individually with calf weight as a covariate, and least squares means were generated. All prices are based on dollars per 45.45 kg of live weight. Breed, color (independent of breed), frame and muscle impacted ($P < 0.001$) feeder calf price. Twenty breed or breed groupings were evaluated. Five breed or breed types received the highest selling prices but were not different from each other ($P > 0.10$) were Angus x Brahman (\$111.82), Angus x Hereford (\$111.70), Angus (\$111.36), Charolais x Hereford (\$110.48) and Hereford x Angus x Brahman (\$110.22). Simmental (\$99.90), Brahman (\$94.34), and Longhorn/Longhorn cross calves (\$71.75) were lower in price ($P < 0.001$) compared with other breeds. Black-white faced calves (\$111.74) received the highest selling price ($P < 0.001$) followed by black (\$110.23), yellow (\$110.09), and yellow-white faced (\$109.81) which were not different from each other ($P > 0.10$). Spotted calves (\$82.16) received the lowest selling price ($P < 0.001$). The selling prices for large- (\$108.81) and medium- (\$108.67) framed calves were similar ($P > 0.10$) but were higher ($P < 0.001$) than small-framed calves (\$86.71). Price also differed ($P < 0.001$) for muscle scores 1, 2, 3 and 4 (\$110.82, \$101.88, \$78.41 and \$53.64, respectively). Beef cattle producers can influence the calf-selling price through genetic selection.

Key words: feeder calves, market price, genetic factors

327 Using ultrasonography to determine reproductive tract development in beef heifers. R. A. Cushman*, L. A. Kuehn, R. M. Thallman, W. M. Snelling, and H. C. Freetly, *USDA-ARS U.S. Meat Animal Research Center, Clay Center, NE.*

Choosing replacement beef heifers is a decision with long-term implications for profitability for the cow-calf producer. If a replacement heifer fails to wean the number of calves necessary to recover her development costs, then she incurs a net loss for the ranch. To avoid such losses, it is imperative to develop technologies that aid in identifying heifers with little chance of weaning 3 or more calves. The first hurdle to reproductive competency is the establishment or reproductive cycles (puberty). No intensive research has evaluated the size of the ovaries or uterus in relation to reproductive status in beef heifers. Therefore, the objective of the present study was to use ultrasonography to measure the sizes of these structures and relate them to reproductive status in yearling crossbred beef heifers ($n = 368$). At weaning, heifers were moved to a feedlot and placed on a growing ration. At 13.6 \pm 0.6 mo of age (range 12 to 15 mo), development of the reproductive tract was evaluated using ultrasonography. Each ovary was measured for length and height and a cross-sectional measurement of the endometrium was taken on the right side, approximately 1 cm

anterior to the uterine body. Antral follicles >3 mm and corpora lutea were counted. Percentages of Brahman, Continental, or British breeds were fitted as fixed covariates. Numbers of antral follicles increased as the percentage of Brahman influence in an individual heifer increased ($P < 0.0001$). There was no breed effect for ovarian size or endometrial diameter. Both ovarian size and endometrial diameter were greater in 15-mo-old heifers than 12-mo-old heifers ($P \leq 0.03$). The percent of heifers that had initiated reproductive cycles as determined by the presence of a corpus luteum at ultrasonography increased as age increased and as percent Brahman decreased ($P \leq 0.001$). The use of ultrasonography to evaluate the ovaries and uterus in yearling beef heifers is a practical tool to aid in determining the reproductive status of replacement heifers. USDA is an equal opportunity provider and employer.

Key words: beef heifer, reproductive tract, puberty

328 Characterization of feeding behavior of abrupt-weaned crossbred heifer calves. A. N. Loyd^{*1,4}, R. C. Vann², J. P. Banta³, T. H. Welsh Jr.¹, J. A. Carroll⁴, and R. D. Randel⁵, ¹Texas AgriLife Research, College Station, ²MAFES, Mississippi State University, Raymond, ³Texas AgriLife Extension, Overton, ⁴Livestock Issues Research Unit, USDA-ARS, Lubbock, TX, ⁵Texas AgriLife Research, Overton, TX.

Stress experienced by calves at weaning often culminates in poor post-weaning feed intake (FI) and growth performance. Understanding feeding behavior during this time is crucial to successful management of these calves. The objective of this study was to characterize the feeding behavior of calves post-weaning. Brahman x British heifers (n = 48) born in spring 2010 at the Brown Loam Branch Experiment Station in Raymond, MS were abruptly weaned from their dams at 199 ± 18 d of age. Heifers were penned in one of 2 dry-lots and received ad libitum access to a high roughage diet offered in GrowSafe bunks.

Feeding behavior was monitored for 24–26 d post-weaning and BW was evaluated weekly beginning at weaning. Data were analyzed using the MIXED procedure of SAS with day as a repeated measure when applicable. The number and duration of daily meal events, the duration of daily head down time, and daily FI increased with time post-weaning ($P < 0.0001$). Body weight was similar for all time points ($P = 0.32$). However, there was great variation in the number of days it took heifers to first approach the feed bunks, eat feed for the first time, eat feed consistently for at least 5 d, and consume enough feed to meet estimated NE_m requirements (Table 1). To account for this variation, the proportion of Brahman influence was included in the statistical model as a covariate. Brahman-influenced heifers were slower to attend the bunks ($P < 0.0001$), begin consuming feed ($P < 0.0001$), consistently consume feed ($P < 0.0001$), and consume enough feed to meet NE_m requirements ($P < 0.03$). However, there was no effect ($P > 0.10$) of breedtype on feeding behavior or FI over the course of the entire feeding period. These data suggest there is considerable variation in post-weaning feeding behavior, of which some is attributable to breedtype. These data also highlight an important consideration when utilizing newly weaned calves in feeding trials, especially those using GrowSafe bunks.

Table 1. Feeding behavior traits of heifers post-weaning

Trait	Mean	SD	Minimum	Maximum
First attendance at bunk (d)	3.9	4.1	0	21
First feed consumption (d)	5.1	5.0	0	26
Consistent feed consumption (d)	8.3	6.2	0	26
NE_m requirement achieved (d)	10.7	4.6	3	21

Key words: feed intake, heifer, weaning