

ABSTRACTS
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1 The effect of early calf weaning followed by ryegrass (*Lolium multiflorum* Lam.) grazing on performance of fall-born calves in Florida. J. D. Arthington*¹ and R. S. Kalmbacher¹, ¹University of Florida, Range Cattle Research and Education Center, Ona.

The objective of this study was to investigate the effectiveness of grazing fall-born, early weaned calves on annual ryegrass in Florida. Jumbo ryegrass was seeded at a rate of 16.8 kg/ha on November 21, 2002. Two grades of land were compared, 1) a Pomona fine sand (sandy, siliceous, gypthermic, Arenic Alaquod), which graded into a lower, wetter Popash mucky fine sand (loamy, siliceous, gypthermic Typic Umbraquefs) (Sloping), and 2) a level well-drained Pomona fine sand (Level). The Sloping grade was included to assess the effect of soil moisture on ryegrass yield, whereas during wetter winters the higher land might yield better and likewise during dryer winters the lower land might yield better. Nitrogen was applied (56 kg/ha) at emergence followed by an application of complete fertilizer (25-5-15; 336 kg/ha) 84 d after seeding. Brahman-crossbred calves were randomly assigned to one of two treatments; early weaned (EW, n = 35) and normal weaned (NW, n = 38). Calves were similar in age and body weight at the time of EW (January 3, 2002; average age = 88 ± 2.2 d and average BW = 95 ± 11.9 kg). Early weaned calves were maintained on ryegrass pastures for 122 d at a rate of 10.7 calves/ha and were provided supplemental grain (14% CP) at a rate of 1.0% BW daily. Normal-weaned calves remained with their dams in the mature cowherd. Available ryegrass and IVOMD and CP concentration was determined at 28-d intervals. Available forage was initially higher (P < 0.05) for Sloping vs Level pastures during January and February (471 vs 85 and 508 vs 46 kg/ha for Sloping and Level pastures in January and February, respectively). Pasture grade did not impact forage quality. Forage CP and IVOMD was highest in January, declining over the entire grazing period (81.3 and 56.2% IVOMD and 34.0 and 17.2% CP for January and May, respectively). Land grade did not impact calf performance. Calf ADG was lower (P < 0.05) for EW than NW calves (0.61 vs 0.86 kg/d). At the stocking rates used in this study early-weaned calves, grazing ryegrass, did not perform as well as normal-weaned calves. Although variability was high, overall forage quality and availability was similar when ryegrass was grown on a Level vs Sloping land grade.

Key Words: Early Weaning, Calves, Ryegrass

2 Performance of early-weaned calves grazing stargrass (*Cynodon nlemfuensis*) and Atriplex (*Atriplex paspalum*) pastures during summer. J. M. B. Vendramini*¹, J. D. Arthington², L. E. Sollenberger¹, R. S. Kalmbacher², and P. Mislevy², ¹University of Florida, Department of Agronomy, ²University of Florida, Range Cattle Research and Education Center.

Early calf weaning is an effective strategy for increasing conception rates of first-calf beef heifers, but few studies have evaluated feeding management options for the calf. This study compared the performance of early-weaned calves grazing stargrass (SG) and atriplex (AP) pastures. All calves received concentrate supplement (16% CP) at a rate of 1.0 % of body weight daily. Calves were weaned on 2 January 2002 at an average age of 84 d and were maintained on annual ryegrass (*Lolium multiflorum*) pasture until 24 April 2002, when they were moved to experimental pastures where they remained until 19 July 2002. Calves were stratified by sex and randomly allocated to SG and AP pastures. There were four replicates per treatment, with six calves per experimental unit. Pasture size was 0.5 and 0.4 ha for SG and AP, respectively. Each pasture was subdivided into four paddocks for rotational stocking. Calves grazed each paddock for 7 d. Calf BW was recorded on 28-d intervals. Herbage mass was measured every 14 d within the paddock that the calves were about to enter. Forage grab samples were also collected and analyzed for CP and IVOMD. There were significant (P < 0.01, SEM = 0.01) differences in ADG for calves grazing SG (0.59 kg) and AP (0.44 kg). Gain per hectare was not different, but tended (P = 0.17; SEM = 16) to be greater (598 kg) on SG than on AP pastures (562 kg). Average herbage mass was greater (P < 0.01, SEM = 0.2) for SG (3.9 tons/ha) than for AP (2.6 tons/ha). Likewise, IVOMD (56.1 vs. 53.8%; P < 0.10, SEM = 0.71) and CP concentration (11.9 vs. 10.4%; P < 0.01, SEM = 0.24) were greater for SG than for AP. At the stocking rates used in this study, SG was a better alternative than AP for early-weaned calves because of higher forage mass, CP, and IVOMD leading to superior calf ADG.

Key Words: Early Weaned Calves, Stargrass, Atriplex

3 Cool season forage-based beef cattle finishing systems. R. B. Pugh*, D. O. Onks, J. D. Gresham, H. D. Loveday, and C. J. Richards, *University of Tennessee, Knoxville TN.*

In two consecutive years, 42 weaned beef calves (305.3 ± 2.0 kg) were used to compare 2 forage-based finishing systems. Each yr calves were stratified by sex and weight before being randomly allotted to system. Each replication consisted of 3 steers and 3 heifers. Each system consisted of fall, winter and spring grazing periods. System 1 (CSP+A) consisted of calves grazing cool season pasture in the fall and spring (0.20-ha/calf) and winter annual pasture (0.20-ha/calf; 3 replications). System 2 (CSP+SH) consisted of calves supplemented with soybean hulls at 1% BW (4 replications) while grazing cool season pasture in the fall and spring (0.20-ha/calf) and stockpiled cool season pasture in the winter (0.40 ha/calf). Calves grazed the same pastures in fall and spring, but separate winter pastures. Hay was fed to both systems when adequate pasture was not available. Initial and final weights for each period were the average of two consecutive days weights. Calves were weighed and supplement adjusted at 28-d intervals. At the onset and completion of each grazing period, ultrasound was used to determine ribeye area and rib fat. After 306 and 284 d (yr 1 and 2, respectively) calves were harvested and carcass data collected. CSP+SH calves gained 0.58 kg/d more ($P < 0.01$) than CSP+A calves (0.40 and 0.98 kg/d, respectively), which resulted in 171 kg more weight gain during the experiment. This resulted in CSP+SH calves being heavier ($P < 0.01$) than CSP+A calves at harvest (595.31 and 424.61 kg, respectively). CSP+SH calves received an average of 1159 kg/calf (DM basis) of soybean hulls throughout the experiment. Final ultrasound measurements indicated that CSP+SH calves had a larger ($P < 0.01$) ribeye area and thicker ($P < 0.01$) rib fat than CSP+A calves (41.5 and 27.8 cm²; 0.97 and 0.31 cm, respectively). CSP+A calves averaged a 1.4 yield grade and average standard quality grade, while CSP+SH calves had a higher ($P < 0.01$) yield grade (2.8) and quality grade (low choice). The CSP+SH system resulted in greater gains with higher quality carcasses than CSP+A.

Key Words: Calves, Grazing Systems, Stock Piling

4 The use of stockpiled limpograss as a winter forage supplement for beef cows in south Florida. T. E. Anton*¹, J. D. Arthington¹, and F. M. Pate¹, ¹*University of Florida, Range Cattle Research and Education Center, Ona.*

Stockpiled limpograss (*Hemarthria altissima*) was evaluated as a winter forage supplement for fall-calving beef cows grazing established bahiagrass (*Paspalum notatum*) in south-central Florida. Cow and calf production data and an enterprise budget for cost-benefit analysis were examined over two consecutive production cycles. Two grazing systems ($n=2$ replications/system; $n=40$ cows/replication) were utilized, consisting of; 1) 0.73 ha of bahiagrass/cow with supplemental winter hay (Control), or 2) 0.61 ha of bahiagrass with 0.30 ha of stockpiled limpograss/cow. Each replicate consisted of six pastures utilized in a modified rotation. All cows were provided a molasses supplement (16% CP; 2.27 kg/hd daily) from the beginning of November through mid-April. Control cows consumed 633 kg of hay/cow annually. No significant differences in cow body weight change, pregnancy rate, or calf

6 Heritability of measures of body density and their relationship to backfat thickness and loin eye area in swine. Z.B. Johnson*¹ and R.A. Nugest, III², ¹*University of Arkansas, Fayetteville,* ²*The Pork Group, Rogers, AR.*

The objective of this study was to estimate heritability of measures of body density and their relationships to backfat thickness (BF) and loin eye area (LEA) in Landrace, Yorkshire, Duroc, and Hampshire breeds of swine. Data consisted of performance test records collected in a commercial swine operation from 1992 to 1999. Boars from 60% of the litters were culled at weaning based on a maternal breeding value of the dam. Remaining boars and all females were grown to 100 d of age ($n = 15,594, 55,497, 12,267,$ and $9,782$ for Landrace, Yorkshire, Duroc, and Hampshire, respectively). At this time all pigs were weighed (WT100) and selected for performance testing based on a combination of maternal and performance indexes which differed by breed. All pigs were weighed at the end of the 77-d performance test (WT177); and BF, LEA, and body length (LEN) were measured. Two measures of

weaning weight were detected. Three scenarios were examined for the cost-benefit analysis of the two grazing systems; 1) a 36 ha, 40 cow stockpiled limpograss system, 2) a 36 ha, 50 cow supplemental hay system, and 3) a 29 ha, 40 cow supplemental hay system. The budgeting analysis assumes that all inputs are constant allowing only variation in the system type, amount of pasture, and herd size. Scenarios 1 and 2 allow for comparison of stocking rates using a constant land base, while scenarios 1 and 3 allow comparison of a constant herd size. The only cost difference between scenarios 1 and 3 is the establishment and maintenance of the pasture, and hay purchase. Returns are identical in the two systems. The cost-benefit analysis indicates that a \$115/ton hay price is needed for the two systems to be comparable. Below this price, stockpiled limpograss is more costly without any additional benefit. Within scenarios 1 and 2, there are additional differences in costs and revenue due to herd size. Accounting for these differences, the analysis shows a breakeven hay price of \$70/ton before the use of stockpiled limpograss becomes cost-effective. Cow and calf production data do not differ among the treatments examined in this study. The cost of limpograss establishment and maintenance may make its use less desirable, from a financial perspective, compared to winter hay feeding.

Key Words: Limpograss, Supplement, Economics

5 Evaluation of perennial eastern gamagrass regrowth. M.S.H. Mashingo*¹, D.W. Kellogg¹, W.K. Coblenz¹, and K.S. Anschutz¹, ¹*Department of Animal Science, University of Arkansas.*

Eastern gamagrass (*EGG*; *Tripsacum dactyloides*) regrowth was evaluated for 2 yr at the University of Arkansas Forage Research Farm in Fayetteville. Regrowth was clipped at 4, 6, 8, and 10 wk after the first hay harvest during both 2001 and 2002. Measurements for EGG height and dry matter (DM) yield were taken, and tillers were counted. Chemical concentration of clipped samples was determined for neutral detergent fiber (NDF), acid detergent fiber (ADF), and crude protein (CP). The plant height for wk 4 to 10 ranged from 100.3 to 190.25 cm and 136.91 to 213.6 cm for yr 1 and 2, respectively. However, the DM yield and tillers of EGG regrowth for yr 2 were less ($P < 0.05$) compared to yr 1. The DM yield increased from 1339 to 6671 kg/ha, and from 2012 to 5232 kg/ha between 4 and 10 wk of regrowth for yr 1 and 2, respectively. Tilling density was higher during yr 1 (10.75 to 432.3 tillers/ft²) than for yr 2 (5.4 to 206.5 tillers/m²) for EGG clipped after 4 and 10 wk of regrowth. The NDF increased from 61.0 to 71.4 % for regrowth clipped after 4 and 10 wk during yr 1. However, there was no such trend during yr 2. The highest NDF concentration was 68.9 % for the EGG regrowth clipped after wk 6. After 10 wk, NDF was 67.9%. The NDF for yr 2 was higher at early stages of regrowth compared to yr 1. Crude protein concentration for yr 1 decreased over time from 16.1 to 7.8% between the 4- and 10-wk clippings, respectively. There were year effects, but optimum time of second cutting for EGG is 6 to 8 wk if nutritive quality is considered. However, yield continues to increase through at least 10 wk of regrowth.

Key Words: Gamma Grass, Regrowth, Nutritive Value

Breeding and Genetics

body density were calculated: $BMI = WT177(kg)/LEN(m^2)$ and $DENSITY = WT177(kg)/LEN(cm)$. For each breed, genetic parameters were estimated using an animal model with litter effects and multiple-trait DFREML procedures. A series of three-trait models including WT100 and combinations of two other traits in each analysis was conducted. Fixed effects included contemporary group and age as a covariate. Estimates of h^2 of LEN, DENSITY and BMI were low to moderate (0.12 to 0.32 for LEN, 0.22 to 0.34 for DENSITY, and 0.15 to 0.26 for BMI). Estimates of h^2 of LEA (0.22 to 0.35) and BF (0.30 to 0.49) were larger implying that direct selection for LEA and BF would be more effective than indirect selection using any of the measures of body density. Genetic correlations between LEA and DENSITY ranged from 0.44 to 0.54 and between LEA and BMI ranged from 0.44 to 0.50. Genetic correlations between BF and DENSITY ranged from 0.37 to 0.67 and between BF and BMI ranged from 0.56 to 0.68. These r_g are high enough to