

Interest in grass finished beef has been increasing. However more research is needed to apply grass finishing to current beef production systems. Methods to predict carcass composition were developed based on data from grain finished cattle. However data are limited on the accuracy of using these methods for grass finish cattle. The objective of this study is to examine the effects of grass or high grain diets on the carcass composition of Angus steers and compare results from two methods for determining carcass composition. Carcass composition was estimated using specific gravity (SG) and composition of 9-11th rib section (RS) from the right side (Lunt et al., 1985), to compare the percentages of muscle, fat and bone of 14 grain-fed and 13 pasture-fed Angus steers. Steers were slaughtered when their estimated quality grade by ultrasound was greater than low select. Average yield and quality grades for grass finish steers were 58% and high select, and 63% and average choice for grain finish steers. Average live weights at slaughter were 610 and 630 kg with standard deviations of 87 and 78 kg for grass and grain diets, respectively. Pasture was a mix of white clover and ryegrass (15.8% crude protein, 49.8% NDF) and the feedlot diet was a 90% corn, 10% alfalfa finishing diet (13.0% crude protein, 26.3% NDF) on a dry matter basis. Data were analyzed with the general linear models procedure of SAS (SAS Institute, 2004) for method, type of diet and method diet interaction with bodyweight as a covariate. Muscle and fat % were significantly different ($P < 0.05$) for method used to estimate carcass composition with least squares means for muscle of 60.3% and 52.0% and fat of 24.1% and 31.7% for RS and SG, respectively. Bone % for diet and method, interaction between diet and method and use of body weight as a covariate for muscle, fat and bone % were not significant. These results imply that carcass composition is different for grass and grain finish steers. However, equations estimating muscle and fat % may need to be re-evaluated for grass finish steers.

Key Words: grass finish, carcass composition

W357 Rumen bacterial population dynamics of steers grazing winter wheat forage and a yeast culture supplement. D. W. Pitta^{*1}, W. E. Pinchak¹, S. E. Dowd^{2,4}, J. Osterstock³, V. Gontcharova², E. Youn^{4,5}, K. Dorton⁶, I. Yoon⁶, B. R. Min¹, J. D. Fulford¹, T. A. Wickersham⁷, and D. P. Malinowski¹, ¹Texas AgriLife Research, Vernon, ²Research and Testing Laboratory, Lubbock, ³Texas AgriLife Research, Amarillo, ⁴Medical Biofilm Research Institute, Lubbock, ⁵Texas Tech University, Lubbock, ⁶Diamond V Mills, Cedar Rapids, IA, ⁷Texas A&M University, College Station.

A study was conducted to study the dynamics in rumen bacterial populations using bTEFAP technique in steers grazing winter wheat with and without yeast supplementation on the Southern Great Plains of Vernon, Texas over a 75-day period. Experimental design included 14 (Angus × Hereford) ruminally cannulated steers grazing a basal winter wheat forage and grouped into 3 treatments based on yeast supplementation i.e., treatment 1 (control; n=4), treatment 2 (7% yeast; n=5) and treatment 3 (14% yeast; n=5). Both fiber and liquid fractions of rumen samples were collected on day 14, 28, 56 and 76 to investigate their associated bacterial populations. Wheat forage grazed in the first 30 days was vegetative and had a higher nutritive value (crude protein of 21% and In vitro dry matter digestibility of 80%) while the wheat forage grazed in the latter half of the Experiment was reproductive (neutral detergent fiber of 50%). Using BLASTn search, sequences were compared to databases and assigned to genera based on the similarity indices. The number of bacterial genera identified increased with time from day 14 (93, 109) to day 76 (271, 233) in both fiber and liquid fractions respectively. *Prevotella* was the most predominant genera in both solid (up to 50%) and liquid (up to 60%) fractions on all sampling days. *Rikenella*

was the second most abundant genus in both fractions, progressively increased with time from 8 to 20%, with increasing in fiber content. There was an increase in the number of bacterial genera identified in the yeast supplemented steers and the increases were mostly confined to the minor genera (<0.9% of 16S rDNA sequences found). Yeast supplementation increased *Ruminococcus* (a major genus) consistently with time and minor genera like *Lactobacillus*, *Lactococcus*, *Megasphaera*, *Atopobium* and *Enterococcus* which fall under Lactic acid bacteria cluster. In summary, yeast supplementation influenced major genera only to a limited extent but more prominent changes in the minor genera. Changes in the major genera were attributed more to the changes in nutritional quality of wheat forage.

Key Words: wheat, yeast supplementation, bTEFAP pyrosequencing

W358 Expression of phosphate transporter in small intestine, kidney, and parotid salivary gland of cattle fed differing levels of phosphorus from wet distiller's grains. A. P. Foote^{*1}, B. D. Lambert^{1,2}, J. A. Brady², M. S. Brown^{3,4}, J. B. Osterstock⁴, J. C. MacDonald^{3,4}, and N. A. Cole⁵, ¹Tarleton State University, Stephenville, TX, ²Texas AgriLife Research, Stephenville, ³West Texas A&M University, Canyon, ⁴Texas AgriLife Research, Amarillo, ⁵USDA-ARS, CPRL, Bushland, TX.

Phosphorus (P) in the diets of animals in confined animal feeding operations (CAFOs) is of great importance with the increasing concern of environmental impact of animal agriculture. Excess phosphorus in diets of cattle is excreted in the manure and, if improperly managed, can be washed into local surface water causing an increase in algae growth, while a dietary deficiency can lead to poor growth and other detrimental symptoms. The objective of this study was to determine the expression of NaPi-IIb in the small intestine and parotid salivary gland and NaPi-IIa in the kidney of cattle fed increasing levels of P (0.29, 0.38, and 0.52% P; 0, 30 and 60% wet distillers grain, respectively). Samples of parotid salivary gland and kidney along with the mucosa of the duodenum, proximal jejunum, distal jejunum, and ileum were collected at slaughter and immediately frozen in liquid nitrogen. Relative amounts of NaPi-IIa or NaPi-IIb mRNA were determined using RT-PCR. Expression of NaPi-IIa in the kidney was not affected by diet ($P = 0.15$). Expression of NaPi-IIb was highest in the ileum and proximal jejunum ($P = 0.058$). NaPi-IIb expression in the parotid and small intestine were also not affected by varying dietary P ($P > 0.2$). It appears that dietary P may play a lesser role in regulation of P transporter expression in ruminants than in other animal species.

Key Words: phosphorus, transporters

W359 Supplemental vitamin E concentration in beef finishing diets containing wet distillers grains with solubles: feedlot performance and carcass characteristics. D. B. Burken^{*1}, K. G. Hanger¹, R. B. Hicks¹, D. L. VanOverbeke¹, J. L. Wahrmond¹, B. P. Holland², J. J. Martin³, P. K. Camfield³, and C. J. Richards¹, ¹Oklahoma State University, Stillwater, ²South Dakota State University, Brookings, ³Oklahoma Panhandle State University, Goodwell.

The objective of this study was to evaluate feedlot performance and carcass characteristics of finishing beef steers fed diets containing wet distillers grains with solubles (WDGS) and supplemented with vitamin E to target improvements in meat quality. One hundred ninety-nine steers (BW = 363 ± 31.1 kg) of mixed *Bos indicus*, *Bos taurus*, and *Bos indicus* × *Bos taurus* breeding were blocked by BW and randomly assigned to 1 of 4 supplemental vitamin E levels (0, 125, 250, and 500 IU/hd/day) fed for the last 97 d of the feeding period. Two blocks were



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