

degradability ($99.8\% \pm 0.2$). Using moderate to high levels of DDGS in forage diets resulted in increased degradation rates of CP. Results indicate up to 1.2% BW DDGS can be fed in forage-based diets without adverse effects.

Key Words: Distiller's Dried Grains with Solubles, Medium-Quality Forage, Steers

T334 Evaluation of corn and soybean co-products in beef cattle finishing diets. P. M. Walker^{*1}, D. Adams¹, and L. A. Forster². ¹Illinois State University, Normal, ²Archer Daniels Midland, Co., Decatur, IL.

Dried distillers grains with solubles (DDGS) and soy hull (SH) supplies have increased due to renewable fuels legislation. This trial evaluated the effects of diets containing 0, 25, or 40% DDGS and 44% SH, and length of time on feed (156, 187, or 263d) on the feedlot performance of 192 Angus crossbred steers (initial wt = 348 ± 1.9 kg). Following an 84d receiving period (P1) in which steers were fed diets containing either shelled corn (SC), SH, or DDGS at 1 or 2% BW, steers were blocked by intake level and assigned within blocks to six dietary treatments (P2) with 4 replicates (24 pens, 6 or 10 steers/pen). Treatments were: 70.5% SC, 13.5% grass hay (GH), 13.5% soybean meal (T1); 59.0% SC, 13.5%GH, 25% DDGS (T2); 40.0% DDGS, 44.0% SH, 13.5%GH (T3); T3 fed for 28d (T4), 56d (T5), or 84d (T6) followed by T2 fed to harvest. Steers were harvested after 156, 187, or 232d on the P2 diets. Data were analyzed using previous dietary treatment (P1) and harvest date as covariates; no interactions were observed between covariates and P2 treatments. Carcass measurements were similar between P2 treatments except for liver abscess scores [T1 higher ($P < 0.05$) than T2-T6]. Length of time on feed increased carcass wt, rib fat, K1IP, marbling score and yield grade. Total DMI was similar between T1 and T2 but was higher ($P < 0.05$) for T3-T6. ADG ($\mu = 1.51 \pm 0.02$ kg) and feed efficiency (G:F) ($\mu = 0.12 \pm 0.005$) were similar between T1 and T2 but lower ($P < 0.05$) for T3-T6 (ADG $\mu = 1.45 \pm 0.02$ kg, G:F $\mu = 0.11 \pm 0.005$). No significant differences in cost of gain were observed between treatments. Mean carcass measurements were: carcass wt = 403 ± 0.8 kg, rib fat = 20.57 ± 0.01 mm, ribeye area = 84.3 ± 0.9 sq cm, K1IP = $2.8 \pm 0.1\%$, marbling score = 7.64 ± 0.1 (7 = avg choice), yield grade = 4.24 ± 0.1 , liver score = 1.5 ± 0.2 (range = 1-5) and dressing percent = 62.5 ± 0.2 . These data suggest that feeding cattle higher rates of DDGS and SH will result in similar quality and yield grades but will require higher total feed intake with lower ADG than diets containing whole shelled corn or limited to 25% DDGS.

Key Words: DDGS, SH, Finishing Steers

T335 Effects of dietary fat concentration and wet sorghum distiller's grains plus solubles on feedlot performance and carcass characteristics of finishing heifers. J. C. Silva^{*1}, N. A. Cole², M. S. Brown¹, D. L. Mitchell¹, C. H. Ponce¹, and D. R. Smith¹, ¹West Texas A&M, Canyon, ²USDA ARS CPRI, Bushland, TX.

Three hundred ninety-eight crossbred yearling heifers (initial BW = 373.5 kg) were used in two experiments to examine the effect of dietary fat concentration on the feeding value of wet sorghum distiller's grains plus solubles (WSDGS). Treatments included two 92% concentrate diets based on steam-flaked corn (SFC) with 0% or 3% added fat from

yellow grease and three diets with 15% WSDGS and either 0, 1.5, or 3% added fat from yellow grease (4 pens/treatment within study). Heifers were fed an average of 106 d before slaughter. Overall DMI was 6.1% greater ($P < 0.01$) for heifers fed WSDGS than for those fed SFC. Among heifers fed WSDGS, DMI was greatest for heifers fed 1.5% fat ($P = 0.04$; quadratic). Overall ADG was 5% greater ($P = 0.04$) for WSDGS compared to SFC. Among WSDGS, ADG tended to be greater for 1.5% fat ($P = 0.12$; quadratic). The ADG:DMI did not differ between SFC with 0 or 3% fat, nor was ADG:DMI altered by replacing a portion of SFC with WSDGS ($P > 0.36$). However, ADG:DMI increased linearly as more fat was added to WSDGS diets ($P = 0.06$). Hot carcass weight was increased an average of 5 kg ($P = 0.05$) when WSDGS replaced a portion of SFC, but carcass weight was greatest for heifers fed WSDGS with 1.5% fat ($P = 0.09$, quadratic). Heifers fed SFC without fat had a larger LM area, lower marbling score, less rib fat, and a lower yield grade ($P < 0.08$) than heifers fed SFC with 3% fat. Heifers fed WSDGS had more rib fat and a higher yield grade ($P < 0.03$) than heifers fed SFC. Inclusion of fat in SFC diets did not alter the distribution of carcass quality grades, but SFC with 3% fat produced fewer ($P = 0.01$) yield grade 1 carcasses than when fat was not fed. Feeding WSDGS did not alter carcass quality grade distribution compared to feeding SFC, but WSDGS produced fewer yield grade 3 carcasses ($P = 0.03$) than SFC. Heifers fed WSDGS had a higher DMI and greater ADG than heifers fed SFC, but gain efficiency did not differ. Adding more than 1.5% fat to diets containing WSDGS tended to reduce growth performance.

Key Words: Fat, Growth Performance, Sorghum Distiller's Grains

T336 Using high-lysine proteins to supplement diets based on dried distillers grains with solubles did not improve lactation performance. E. A. French^{*}, M. Ile, and L. E. Armentano, *University of Wisconsin, Madison.*

The objectives of this study were to compare production responses of lactating dairy cows fed dried distillers grains with solubles (DDGS) combined with other protein sources varying in lysine content. Twenty four lactating Holstein cows (six primiparous and eighteen multiparous) were used in four, replicated 6×6 Latin Squares, with 21-d periods. All diets contained 37% corn silage, 18% alfalfa silage, 5% cottonseed and 40% concentrate (DM basis). DDGS at 13% and 18% of diet DM was supplemented with Aminoplus[®], a soy-based bypass protein source (13AP and 18AP). DDGS (18% of diet DM) was also supplemented with commodity soybean meal (18SBM), blood meal (18BI), blood and fish meal (18BIF) and Aminoplus[®] and blood meal (18APBI). Diets were formulated to have similar NDF and fat concentration. The 18APBI positive control diet was 18.5% CP but the other five diets were isonitrogenous (17.0% to 17.4% CP). No significant differences were found across treatments for DMI (25.3 kg/d), yield of milk (44.5 kg/d), milk protein (1346 g/d), fat (1458 g/d) and lactose (2170 g/d) or milk fat concentration (3.28%). Milk protein percent was higher for the 18APBI diet vs 18AP (3.05% vs. 3.00%; $P < 0.05$, one-tailed). This last result implies the cows in this study could respond to added protein, albeit slightly. Therefore, either our hypothesis that diets containing more available lysine would cause increased production responses was incorrect, or the diets did not improve the lysine status of the cows. In either case the quality of the protein in all these 18% DDGS diets appears similar.

Key Words: Dried Distillers Grains with Solubles, Dairy Cows

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