

**2010
PLAINS NUTRITION COUNCIL
SPRING CONFERENCE**

**APRIL 22-23, 2010
SAN ANTONIO, TEXAS**

PUBLICATION NO. AREC 10-57

**TEXAS AGRILIFE RESEARCH AND EXTENSION CENTER
TEXAS A&M SYSTEM
AMARILLO**

Effects of non-protein nitrogen and wet distiller's grains with solubles on growth performance, carcass merit, mineral status, tissue enzyme activities, and visceral organ mass by feedlot cattle C. Ponce¹, M. Brown^{1,2}, J. Osterstock², N. A. Cole³, T. Lawrence¹, J. MacDonald^{1,2}, C. Maxwell¹, J. Wallace¹ and B. Coufal¹, ¹Feedlot Research Group, West Texas A&M University, Canyon, ²Texas AgriLife Research, Amarillo, TX and ³USDA Conservation and Production Research Laboratory, Bushland, TX

Our previous data suggest that the non-protein nitrogen (NPN) need in diets with 15% wet distiller's grains with solubles (WDGS) for optimum growth performance may be slightly less than in 0% WDGS diets and a potential for reduced dressed yield with higher levels of WDGS. In Exp. 1, steer calves (n = 296; initial BW = 759 lb) were adapted to a common finishing diet, blocked by BW, and assigned to 36 soil-surfaced pens (18 m² of pen space and 33 cm of bunk space/animal). Treatments included a control diet without WDGS (contained 3% NPN from urea, and cottonseed meal) and 15% WDGS with either 1.5, 2.25, or 3.0% NPN (0.52, 0.78, and 1.06% urea, respectively). The WDGS was obtained three times/week and averaged 75:25 corn:sorghum over the study. Steers were implanted on d 1 with Revalor-XS and were fed twice daily for an average of 165 d. Overall DMI was 6.1% higher (P = 0.001) for steers receiving WDGS than for the control. Similarly, steers fed WDGS had 8% greater ADG (P < 0.01) on either a live or a carcass-adjusted basis than the control. However, overall gain efficiency on either a live or adjusted basis was not different among treatments (P > 0.15). Dietary NPN did not influence growth performance by cattle fed WDGS (P > 0.21). Hot carcass weight was 3% lighter for the control than for the average of WDGS (P = 0.01). Remaining measured carcass characteristics were not altered by treatment (P > 0.16). In Exp. 2, 24 steers (initial BW = 847 lb) were blocked by weight, randomly assigned to dietary treatments (0, 30, and 60% of DM as WDGS), and were fed individually for 125, 150, 164 and 192 d (2 blocks/slaughter date). Steers fed 30% WDGS had greater liver S and Mn concentrations and lower liver Fe concentrations than the control (P < 0.10; initial values used as a covariate). However, feeding 60% WDGS decreased liver Cu and increased liver Fe (P < 0.10) compared to those fed 30% WDGS. Cytochrome c oxidase activity in brain tissue was decreased when feeding 60% WDGS compared to 30% WDGS (P = 0.10), and cytochrome c oxidase activity decreased linearly (P = 0.06) in lung tissue as WDGS increased. Feeding WDGS increased gut fill in a linear manner (P = 0.01). Feeding 30% WDGS increased fractional mass (g/kg of EBW) of the small intestine (P < 0.10) compared to the control, whereas 60% WDGS increased fractional kidney mass (P < 0.10) compared to those fed 30% WDGS. Data suggest that growth performance may not be improved by including more than 1.5% added NPN in diets with 15% WDGS. Dressed yield, Cu absorption or retention, and cytochrome c oxidase activity may be reduced by WDGS when fed at higher levels in diets based on steam-flaked corn.

Comparison of a single Revalor XS implant with a Synovex Choice-Synovex Plus implant combination on feedlot steer performance and carcass characteristics J. M. Popowski¹, G. I. Crawford¹, R. Gilland², C. G. Campbell³, D. Fedders³, ¹University of Minnesota, Twin Cities, ²Gilland Feedlot, Morgan, MN, ³Fort Dodge Animal Health, Overland Park, KS

Crossbred beef steers (n = 751; initial BW = 703 ± 18 lb) were utilized in a commercial feedlot experiment to compare the effect of a single dose of Revalor XS (200-mg trenbolone acetate, 40-mg estradiol; REV) with a Synovex Choice (100-mg trenbolone acetate, 14-mg estradiol benzoate) followed by Synovex Plus (200-mg trenbolone acetate, 28-mg estradiol benzoate);