Effects of spaying and terminal implant strategy on performance and carcass characteristics of beef feedlot heifers *J.M. Kelzer[1], C.R Dahlen[2], G.I. Crawford[3], and A. DiCostanzo[1], [1]University of Minnesota, St. Paul, [2]Northwest Research and Outreach Center, University of Minnesota, Crookston, [3]Extension Regional Office, University of Minnesota, Hutchinson*

Crossbred beef heifers (n = 139) averaging 602 ± 48 lb initial BW were blocked by weight (**Heavy** vs. **Light**) and assigned to 1 of 16 pens in a randomized complete block design with a 2 x 2 factorial arrangement of treatments. Pen was assigned randomly to treatments within block to evaluate effects of reproductive status (spayed, **SPAY** vs. intact, **INTACT**) and terminal implant strategy (moderate implant containing 200 mg testosterone propionate + 20 mg estradiol benzoate; **MODR** vs. aggressive implant containing 200 mg trenbolone acetate + 28 mg estradiol benzoate; **AGGR**) on performance and carcass characteristics of feedlot heifers. On d -14, eight pens of heifers (n = 70) were spayed via the ovarian-drop technique. On d 1, all heifers were implanted (100 mg progesterone + 10 mg estradiol benzoate) and were fed backgrounding diets (0.50 Mcal NEg/lb DM, 14.2% CP) at 2.0% BW for 65 or 85 d (Heavy and Light heifers, respectively). On d 66 and 86 respectively, Heavy and Light heifers received terminal implants to begin the finishing phase. Heifers were fed diets (0.60 Mcal NEg/lb DM, 11.4% CP, 360 mg/d monensin, 90 mg/d tylosin) ad libitum. Intact heifers received melengestrol acetate (0.5 mg/d) for estrus suppression throughout the entire experiment. On d 146 and 174 respectively, Heavy and Light heifers were harvested at a commercial abattoir, and carcass characteristics were collected following a 24-h chill. During backgrounding, INTACT heifers had greater DMI ($P = 0.02$; 14.5 vs. 14.2 ± 0.1 lb/d), greater ADG ($P = 0.02$; 3.53 vs. 3.23 ± 0.10 lb), tended to have improved F:G ($P = 0.06$; 4.101 vs. 4.415 ± 0.115), and heavier end BW ($P = 0.04$; 862 vs. 842 ± 9 lb). During finishing, no status x implant interactions occurred ($P > 0.86$) for performance. Heifers receiving MODR implants had greater DMI ($P = 0.05$; 19.7 vs. 18.8 ± 0.5 lb/d) compared to heifers with AGGR implants, but ADG was similar ($P > 0.17$) among all heifers. Heifers receiving AGGR implants had improved ($P = 0.05$) F:G over heifers with MODR implants (5.698 vs. 5.986 ± 0.098). Final live BW, HCW, 12th rib fat thickness, LM area, marbling score, and yield grade were not influenced ($P > 0.15$) by spaying or implanting. Intact heifers receiving melengestrol acetate had improved performance over spayed heifers during backgrounding; however, appropriate implanting may allow similar performance during finishing. While not impacting carcass characteristics, aggressive implants reduced DMI but improved feed efficiency in feedlot heifers. Thus, terminal implant strategy should be carefully considered to replace lost endogenous anabolic effects due to spaying without compromising feedlot performance and carcass quality.

Effects of roughage source and dried corn distiller's grains concentration on feedlot performance and carcass characteristics of finishing beef steers *C. L. Maxwell[1], M. S. Brown[1], N. A. Cole[2], B. Coufal[1], J. O. Wallace[1], J. Simroth-Rodriguez[1], and S. Pratt[1], [1]Feedlot Research Group, West Texas A&M University, Canyon, [2]USDA ARS Conservation and Production Research Laboratory, Bushland*

Physical attributes of roughages used in finishing diets may impact the extent of ruminal digestion of dried distiller's grains (**DDG**) and growth performance. Crossbred steers (n=380) were adapted to a common finishing diet, blocked by BW, implanted with Revalor-S (120 mg of trenbolone acetate and 24 mg of estradiol), and assigned to treatments of roughage source

(sorghum-sudan hay [**Hay**] or sorghum-sudan silage [**Silage**]) and DDG concentration (0 or 20% of diet DM). Cattle were housed in 40 soil-surfaced pens with at least 179.76 ft^2 of pen space and 12.0 in. of bunk space/animal. Roughages were included on an equal NDF basis. All diets contained 3.4% non-protein N from urea (1.2% urea) and cottonseed meal was utilized as a protein source in 0% DDG diets. Cattle were fed twice/d for 108 d (initial BW = 905 ± 27.81 lb). Steers fed 20% DDG ate 4.1% more DM than steers fed 0% DDG (23.93 vs. 22.99 lb, $P = <0.01$), but silage or hay did not influence DMI ($P = 0.56$). Overall shrunk ADG on a live basis was not altered by treatment ($P > 0.56$). Gain efficiency on a live basis was not altered by silage or hay ($P = 0.77$), but steers fed 0% DDG were 2.8% more efficient than steers fed 20% DDG ($P <0.01$). There was a roughage source x DDG interaction for carcass-adjusted ADG and gain efficiency, dressing percentage, hot carcass weight, and LM area ($P < 0.07$). Adjusted ADG was increased 6.8% by silage with 20% DDG ($P = 0.05$), but forage source did not alter ADG when 0% DDG was fed ($P = 0.38$). Adjusted gain efficiency was reduced ($P = 0.03$) 3.5% by hay with 20% DDG, but efficiency was not altered ($P = 0.63$) by forage source at 0% DDG. Dressing percentage was reduced by hay at 20% DDG (63.0 vs. 62.5, $P = 0.02$) and increased by silage at 20% DDG (62.5 vs. 63.4, $P < 0.001$). Hot carcass weight was not altered by DDG with hay ($P = 0.37$), but was increased 16 lb with 20% DDG when silage was fed ($P=0.05$). The LM area was increased by silage with 20% DDG ($P = 0.02$), but forage source did not alter LM area at 0% DDG ($P = 0.29$). Marbling score was higher when DDG was fed with either silage or hay (380 vs. 390, $P = 0.06$). Results suggest that rate of gain on a carcass basis can be improved by feeding DDG with silage, whereas forage source was less important when no DDG was fed.

Effects of roughage and wet distillers grains with solubles concentrations in steam-flaked corn-based diets on feedlot cattle performance and carcass characteristics *M. L. May, M. J. Quinn, N. DiLorenzo, D. R. Smith, and M. L. Galyean, Texas Tech University, Lubbock*

Effects of wet distillers grains with solubles (WDG) and dietary concentration of alfalfa hay (AH) on feedlot performance and carcass characteristics were evaluated in a randomized complete block design with a 2 × 3 + 1 factorial arrangement of treatments. Factors were dietary concentrations (DM basis) of WDG (15 or 30%) and AH (7.5, 10, or 12.5%) plus a steam-flaked corn-based control diet that contained 10% AH and no WDG. A total of 224 British crossbred steers (initial BW 755 ± 20.6 lb) was used, with 4 steers/pen and 8 pens/treatment. Treatments did not affect ($P > 0.15$) final shrunk BW or ADG. There was a tendency ($P = 0.06$) for cattle fed 15 vs. 30% WDG to have greater DMI from d 0 to 35, and DMI was greater DMI from d 0 to 70 ($P < 0.05$) with the lower WDG level; however, DMI did not differ with WDG level from d 0 to 105 ($P > 0.17$) or for the overall feeding period ($P > 0.38$). Similarly, G:F for the overall feeding period was not affected by WDG level ($P > 0.25$). Increasing dietary AH tended ($P < 0.08$) to linearly increase DMI, and decrease ($P < 0.05$) G:F and calculated NEm and NEg concentrations. Carcasses from cattle fed 15 vs. 30% WDG had greater yield grades ($P = 0.01$), with tendencies for greater 12th rib fat ($P = 0.05$) and marbling score ($P = 0.053$). There were no differences among treatments ($P > 0.15$) in HCW, dressing percent, LM area, KPH, proportions of cattle grading USDA Choice, and incidence of liver abscess. Results indicate that including 15 or 30% WDG in SFC-based diets did not result in major changes in feedlot performance or carcass characteristics, but increasing AH concentration from 7.5 to 12.5% in diets containing WDG decreased G:F.

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