

EVALUATION OF DIETARY ZINC SUPPLEMENTATION ON LAMB PERFORMANCE AND CARCASS CHARACTERISTICS

J. G. Logar¹*, C. L. Gifford¹, R. M. Knuth¹, H. C. Cunningham-Hollinger¹, A. L. Julian¹, C. M. Page¹, J. R. Whaley¹, B. Bisha¹, and W. C. Stewart¹,

¹Animal Science, University of Wyoming, Laramie, WY, USA,

*jakelogar57@gmail.com

I. OBJECTIVES

The objectives of this study were to assess the impacts of feeding 3 concentrations of a dietary zinc supplement pellet on lamb feedlot performance, carcass characteristics, and nutrient composition.

II. MATERIALS AND METHODS

Commercial Rambouillet lambs ($n=33$) were weighed (49.0 ± 1.0 kg) and randomly assigned to one of 3 treatment groups consisting of a zinc-sulfate (80%) and zinc amino acid (20%) complex supplementation pellet (Zinpro Corp., Eden Prairie, MN) included in feedlot diets. Treatment groups consisted of diets with a zinc concentration of 72.7 mg/kg (T1), 95.5 mg/kg (T2), or 315 mg/kg (T3). Individual feed intake and body weights were recorded at day 10, 24, 38, 52, 66, and 73. Following the feeding phase, lambs were transported to a commercial harvest facility, and samples of the liver were collected for mineral analysis. At 24 h postmortem, carcasses were allowed at least 20 min to bloom after being ribbed between the 12th and 13th rib and carcass characteristics were measured. Objective color (L^* , a^* , and b^*) scores were measured from the *Longissimus dorsi* and *Rectus abdominis* (flank) by obtaining 3 scans and recording a mean reading (HunterLab MiniScan EZ 45/O-L; Reston, VA). Samples of the *Longissimus dorsi* were removed from the 13th rib region of each carcass for proximate composition. All data were analyzed using the GLIMMIX procedure of SAS version 9.4 (SAS Institute Inc., Cary, NC).

III. RESULTS

An interaction between treatment and feeding period was observed for dry matter intake ($P < 0.001$). No treatment effects were identified for growth performance, but average daily gain ($P < 0.001$) and grain/feed ratio ($P = 0.04$) was greatest during the final feeding period. Treatment impacted a^* values ($P < 0.05$) of the flank, resulting in greater a^* values of the flank from lambs in the T2 treatment group compared to the T3 treatment group. Treatment did not affect L^* ($P = 0.37$) and b^* ($P = 0.11$) values from either muscle. No treatment differences were identified for other carcass characteristics, proximate composition, or mineral analysis, but a trend of higher sodium ($P = 0.06$) among the T1 treatment group and lower calcium ($P = 0.07$) among the T3 treatment group was observed.

IV. CONCLUSION

Results suggest that dietary zinc supplementation impacts dry matter intake dry matter intake and redness values in the flank of lamb carcasses. This information will be beneficial to future work assessing optimal level of zinc supplementation in feedlot lambs.

Keywords: carcass characteristics, lamb performance, zinc supplementation