

An Evaluation of Feedlot Arrival Castration Status on Individual Animal Performance Over a 61-Day Preconditioning Period in Calves Having an Ultra-High Risk of Developing Bovine Respiratory Disease

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Introduction

Castration at feedlot arrival may contribute to animal stress, and therefore have potential effects on feedlot performance and health. The purpose of this study was to follow two populations of male calves (those castrated prior to feedlot arrival and those castrated at the time of feedlot arrival) over a 61 day preconditioning period and to compare performance data based on individual animal feed intakes (GrowSafe Systems Ltd., Airdrie, Canada).

Materials and Methods

Calves at ultra-high risk for developing bovine respiratory disease (BRD) were candidates for the trial ($n = 80$; body weight (BW) = 534.6 ± 9.3 lb; 242.5 ± 4.2 kg). Upon arrival, 40 intact male calves (BULLS) were allocated to the trial. Based on initial BW ± 5.5 lb (2.5 kg) and hair color, a castrated male calf (STEER) from the same truckload was matched with each BULL and allocated to the trial. Arrival processing included administration of a metaphylactic antimicrobial for control of BRD and proprietary health procedures based on animal health risk assessment (Feedlot Health Management Services, Ltd. Okotoks, Alberta, Canada). Individual number and electronic ear tags were applied, and intact male calves were band castrated at this time. After initial processing, matching BULL/STEER pairs were randomly allocated to one of two pens (40 animals (20 pairs)/pen), with each pen equipped with GrowSafe technology to allow for individual animal feed intake

monitoring. Animals were observed daily by trained personnel for detection and treatment of disease, and cattle were re-weighed on day 30 and day 61. Animal performance was analyzed using PROC GLIMMIX (SAS Institute, Cary, NC). Animal was the experimental unit, and the model included the fixed effect of experimental group and the random effects of replicate and pen. Animal health parameters were analyzed using a chi-square procedure of SAS. Six animals (3 BULLS, 3 STEERS) were removed from the trial and 2 (5.0%) BULLS and 1 (2.5%) STEER died ($P=0.52$) over the course of the trial; all were removed from analysis.

Results

Over the course of the trial, no differences in BRD treatment, average daily gain, dry matter intake or gain to feed ratio were observed between the experimental groups ($P<0.05$). However by day 60, BULLS had 3.2% lower BW (672 vs 694 lb; 305 vs 315 kg; $P=0.05$), 13.6% lower average daily gain (2.25 vs 2.60 lb; 1.02 vs 1.18 kg/day; $P=0.02$), and tended ($P=0.09$) to have 7.6% lower gain to feed (0.171 vs 0.185) when compared to STEERS.

Significance

Based on individual animal feedlot performance, the results of this study indicate that potential negative effects on feedlot performance should be considered as part of purchase price for bull calves.