An Evaluation of Arrival Health Risk Status of Steer Calves on Individual Animal Performance and Health over a 61-Day Preconditioning Period

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Introduction

Bovine respiratory disease (BRD) is the most common disease in calves that enter the feedlot, and may result in large economic losses. Arrival risk status is often used to predict the risk of an animal developing BRD and subsequently which vaccination program to follow. The purpose of this study was to follow two populations of calves with different pre-arrival commingling (ranch direct vs auction derived)over a 61 day preconditioning period, to compare performance data based on individual animal feed intakes using the GrowSafe data collection system (GrowSafe Systems Ltd., Airdrie, Canada).

Materials and Methods

Steer calves were individually allocated to one of two experimental groups based on BW and risk of developing BRD: ranch-direct steer calves (n = 120; BW = 637 +/- 15.08 lb; 289 +/- 6.84 kg; RANCH) and steer calves at ultra-high risk of developing BRD (n = 120; BW = 551 +/- 15.08 lb; 250 +/- 6.84 kg; UHR). 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, cattle of the same risk group were randomly allocated to one of six pens (40 head/pen) equipped with GrowSafe technology to allow for individual animal feed intake monitoring and fed for 61 days. 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 effect of replicate. Initial body weight was heavier for RANCH than UHR (637 vs 551 $\pm$ 15.08 lb; 289 vs 250 $\pm$ 6.50 kg; $P<0.001$) and because of this difference was included in the model as a covariate. Animal health parameters were analyzed using the chi-square procedure of SAS. A total of 24 animals (15 RANCH and 9 UHR) were removed and two (1.67%) RANCH and one (0.80%) UHR died ($P=0.56$) over the course of the trial; all were removed from analysis.

Results

Treatments for BRD were higher for RANCH calves than for UHR calves (22.5% vs 10.0%; $P=0.01$). However, no differences in average daily gain, dry matter intake, or feed to gain ($P=0.05$) were observed from day 0 to 30 or from day 0 to 61.

Significance

Based on these data, health risk status at arrival had no effect on individual animal performance; however RANCH calves were treated more often for BRD than UHR calves over the 61day preconditioning period. These results suggest that economic modeling is important when determining arrival health protocols and purchase price based on health risk assessments of specific populations of cattle.