

Evaluation of On-Arrival or Prompted Metaphylaxis Regimens Using Ceftiofur Crystalline Free Acid for Feedlot Heifers at Risk of Developing Bovine Respiratory Disease

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Introduction

This study was designed to evaluate the efficacy of metaphylaxis with ceftiofur crystalline free acid (EXCEDE®) in ranch-fresh, northern US calves at risk of developing bovine respiratory disease (BRD). In addition, the authors evaluated the differences in health and production outcomes between cattle receiving metaphylaxis on arrival and those which were administered a control dose later in the feeding period.

Materials and Methods

A total of 1,400 ranch-fresh, northern US calves were procured and randomly allocated to four treatment groups: 1) no metaphylaxis (MTX) / negative control, 2) MTX prompted by pen morbidity, 3) MTX prompted by a decline in feed intake, or 4) on-arrival MTX. Ceftiofur crystalline free acid administered SQ at the base of the ear at a dose of 6.6 mg/kg [3.0 mg/lb] was used as MTX. Decreased feed intake did not meet the study threshold, so Groups 1 and 3 were combined into a single control group for statistical analysis. Primary variables of interest were pen morbidity and mortality rates. Other variables analyzed were average daily gain (ADG) and first treatment success rate following metaphylaxis.

Results

The percentage of calves not treated for BRD was 14 to 15 percentage points higher in the on-arrival MTX (72.7%) and morbidity-prompted MTX (73.4%) groups, respectively, compared to the controls (58.2%; $P \leq .02$). Mortality was numerically higher in the morbidity-prompted MTX group (3.4%) compared with both the on-arrival MTX (0.9%) and the control groups (1.6%). There were no differences in either average daily gain or feed consumption. First treatment success rate in cattle diagnosed with BRD was significantly lower ($P \leq .05$) in the morbidity-prompted metaphylaxis group (78.3%) compared with both the on-arrival MTX (89.6%) and the control groups (91.1%).

Significance

In northern, ranch-fresh calves, MTX reduces the incidence of BRD and has better utility administered on arrival compared with relying on morbidity as a signal for timing antimicrobial administration.