Utilization of point-of-care chute side evaluation to determine more accurate prognosis creating strategic feedlot cattle management

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Introduction

Chute side diagnostics offer an improved prognostic accuracy for diseased cattle. Determining prognosis for cattle chronically ill with pneumonia is a critical management issue and impacts both animal welfare and antimicrobial stewardship. This study aims to determine potential associations between parameters and chute side evaluations at the time of treatment with negative (mortality/culling) outcomes. Differentiating between recoverable/non-recoverable animals is valuable information at time of treatment that can inform management decisions.

Materials and methods

A cross-sectional study evaluated commercial beef feedlot animals (n = 98, 799.6 ± 15.8lb; Steer, n = 37; Heifer, n = 61) chute side at time of treatment. Only animals having at least 3 treatment events were enrolled. Chute side evaluations took place from July to December. Parameters tested for association in this study were sex, days on feed, body weight, breed, pulse oximetry, back fat, rib eye area, lung auscultation score at cranio-ventral/caudo-dorsal lobes, and lung ultrasound imaging. Each animal's outcome status was determined 60-days post-enrollment. Statistical models were generated to evaluate the association of chute-side evaluations and ultrasound imaging parameters with animal outcomes. Multivariate logistic regression on 60-days outcomes, modeling all variables collected to identify best model.

Results

Variables significantly ($P < 0.05$) associated with negative animal outcomes (Death/Cull) included B-line count ≥ 3, B-Line Area (2.9 ± 0.18in^2), and presence of Moth Sign.

Significance

This multivariate model showed valuable prognostic parameters for chute-side applications. Strategic use of lung ultrasound has potential usefulness for determining prognosis for animals chronically ill with pneumonia; offering valuable insights for targeted treatment and management decisions in feedlot cattle health.

