evated by 35.8° F (2.1° C) at peak day 3, $P < 0.01$), and overall less grooming (58% less, $P = 0.02$). In Study 2, on the day of peak illness, steers with greater %LUNG had an increased sickness response, including less bunk attendance ($P < 0.01$; $R^2 = 0.22$; $P = 0.04$), brush use ($P = 0.04$; $R^2 = 0.22$; $P = 0.01$), and self-licking ($P = 0.04$; $R^2 = 0.26$; $P = 0.02$) than those with lower %LUNG. Rectal temperature was higher among those with greater %LUNG ($P = 0.05$), but $R^2$ was not significant.

## Significance

The BRD sickness response, lower DMI, occurred as early as 2 days after viral challenge. Changes in DMI/bunk attendance and grooming were both more persistent and had a clearer relationship with %LUNG than fever, indicating they are better candidates for automated monitoring and BRD detection. Brush grooming behavior appeared to be a good measure of illness and has the potential to be automatically monitored in a cost-effective fashion. Future studies will determine if brush-directed grooming can indeed be continuously monitored to detect BRD.

# Comparison of a remote early disease identification (REDI) system to metaphylaxis and conventional management for control of bovine respiratory disease in high risk beef calves

**Brad J White**, *DVM, MS*; **Dan R. Goehl**, *DVM*; **David E. Amrine**, *DVM, PhD*
*Professional Beef Services, LLC, Canton, MO 63435*

## Introduction

Antimicrobial treatment of an entire cohort on arrival is common when the group is deemed high risk for bovine respiratory disease (BRD). Early and accurate BRD diagnosis could alter population disease dynamics and provide an alternative BRD control method. The research objective was to compare health and performance outcomes of high risk calves managed through conventional means (metaphylaxis and human observation) to cattle managed using a remote, early disease identification (REDI) system.

## Materials and Methods

A randomized controlled pen level trial with 3 approximately 60 day replicates was conducted comparing health and performance after BRD control through conventional (CV) or REDI system (RD) management. For each replicate, cattle at high BRD risk arrived in a single group and were randomly allocated to a CV or RD pen. Calves in CV pens were metaphylactically treated at arrival and identified and treated for BRD via human observations. Calves in RD pens received no metaphylaxis and all BRD identification was based solely on REDI.

## Results

Cattle faced substantial disease challenge during 30 day trials, yet no differences ($P > 0.10$) in performance (ADG: CV 2.6 ± 0.3; RD 2.7 ±0.3; feed:gain: CV 8.9 ± 0.4, RD 8.6 ± 0.4) or BRD incidence (CV 62.4% ± 12.4; RD 56.5% ± 13.0) were observed among CV and RD groups. The lack of statistical differences may have been related to the small sample size (n = 3 pens per treatment group); however, the average DOF to first treatment was significantly ($P < 0.05$) lower for RD pens (8.5 ± 1.2) compared to CV pens (16.2 ± 1.2). Average doses of antimicrobials used per head was lower ($P = 0.04$) in RD pens (0.8 ± 0.23) compared to CV pens (1.8 ± 0.23) when all antimicrobial doses were considered (metaphylaxis, 1st, 2nd, and 3rd treatments).

## Significance

Appropriate antimicrobial stewardship is a critical concept in food animal medicine, and the REDI system promotes strategic antimicrobial management by treating BRD cattle at appropriate times. In this initial pilot work health and performance were not different between REDI and conventional BRD management systems.