

Activity, rumination, and performance of BRD treated calves compared to their own baseline activity and healthy cohorts.

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INTRODUCTION

The impact of Bovine Respiratory Disease (BRD) on health and feed performance in the feedlot phase of beef production is well described. However, the ability to now continuously monitor rumination and activity provides greater insight into the physiological parameters impacted by the disease as well as the treatment response.

OBJECTIVE

The objective of this study was to determine rumination, activity, and performance of beef cattle treated for BRD with a Florfenicol-Flunixin Meglumine combination (Resflor Gold®, Merck Animal Health, Madison, NJ, USA) when compared to their own baseline and healthy cohorts.

MATERIALS AND METHODS

- ▶ Experiment designed as a prospective cohort study in 203 calves exposed to naturally-occurring BRD.
- ▶ On arrival, all calves were processed with a feedlot receiving protocol and were equipped with an ear monitoring tag (SenseHub®) that captures biometric data. Calves were enrolled at the time of first BRD diagnosis based on a case definition (clinical score of 1, 2 or 3 and rectal temperature > 104°F).
- ▶ All calves meeting the case definition (N=93) were treated with Resflor Gold® (6 mL/100 lbs SQ), allocated to a "sick pen" and followed for 46-days post-diagnosis. The remaining calves (N=110) were maintained in the original pens.
- ▶ Health, average daily gain (ADG), activity, and rumination parameters were collected on all calves.
- ▶ Data analyses were performed by generalized linear mixed models evaluating the calf as the experimental unit.

Cattle diagnosed and treated for BRD display negative performance compared to their healthy counterparts.

Cattle that respond favorably to Resflor Gold® (Florfenicol-Flunixin Meglumine) treatment outperform their cohorts that require ongoing therapy.

Regardless of the frequency of BRD treatments, rumination and activity biometrics are not negatively impacted in calves treated with Resflor Gold® (Florfenicol-Flunixin Meglumine) compared to their baseline and healthy cohorts.

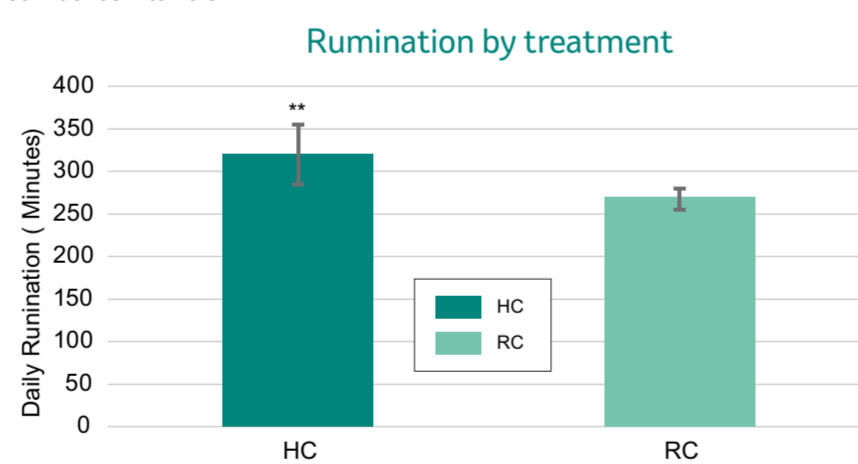
RESULTS

- ▶ Healthy calves (HC) had a higher final body weight, Average Daily Gain (TABLE 1), rumination (FIGURE 1A) and activity (FIGURE 1B) than calves treated for BRD at least once (RC) (P<0.10).
- ▶ Rumination (FIGURE 2A) and activity (FIGURE 2B) of RC increased compared to pre-treatment levels among calves treated only one time for BRD (P<0.10).
- ▶ No differences were observed between pre- and post-administration for calves treated 2 or 3 times (P>0.10). No adverse events were observed in this study.

TABLE 1. Comparisons of counts, enrollment body weight, ending body weight, and average daily gain between heifer calves meeting the BRD case definition compared to healthy calves during a 46-day feedlot study.

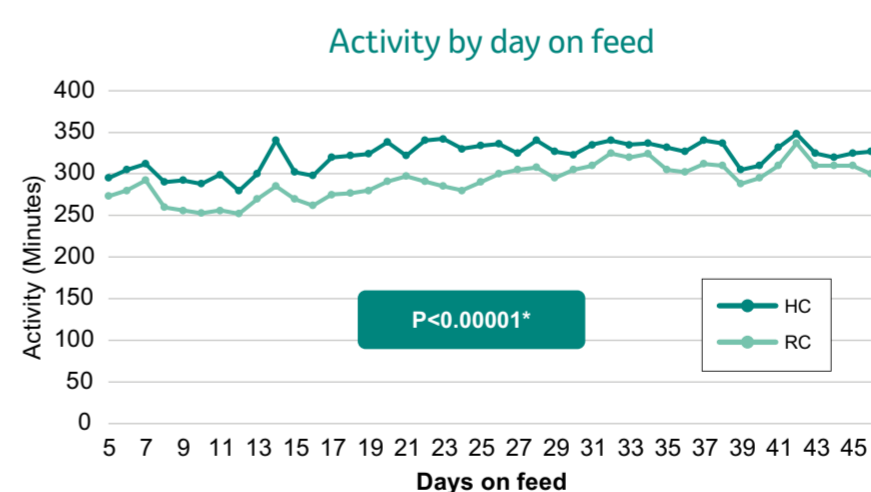
Parameter	HC		RC		P-value
	Mean	SEM	Mean	SEM	
Count	110		93		
Enrollment body weight (lbs)	463.8	8.0	461.5	4.6	0.835
Ending body weight (lbs)	615.1	22.7	547.7	10.4	0.083
Average daily gain (lbs/day)	3.29	0.33	1.82	0.17	0.076

FIGURE 1A. Model-adjusted average daily rumination between beef calves diagnosed with BRD and treated for BRD with Resflor Gold® compared to those that maintained health during a 46-day observation period. Error bars denote 90% confidence intervals.



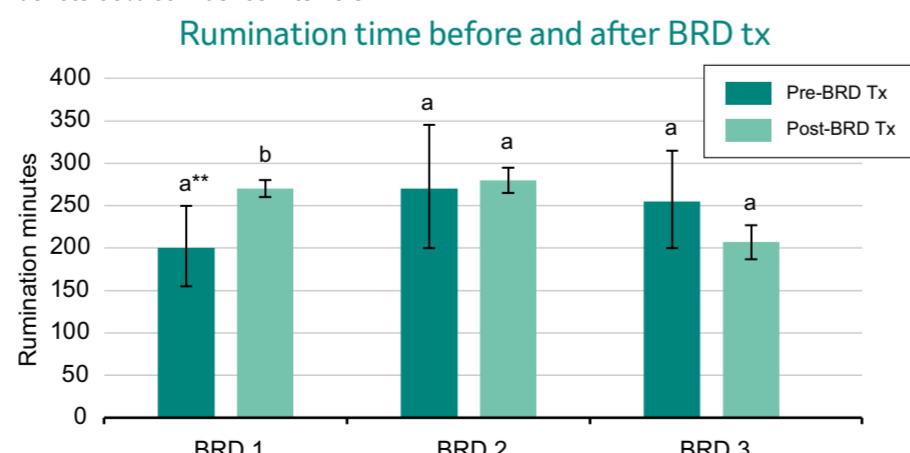
**Significant difference between treatment groups (P<0.10).

FIGURE 1B. Model-adjusted activity between cattle treated for BRD with Resflor Gold® compared to calves maintaining healthy status for the duration of the 46-day study.



*The stated P-value represents a significant treatment x day on feed (DOF) effect.

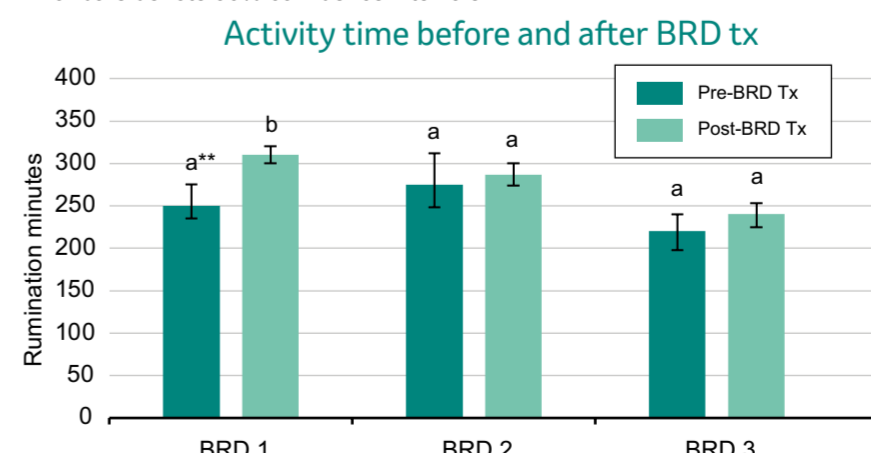
FIGURE 2A. Model-adjusted averages* for rumination among beef calves prior to BRD diagnosis and treatment compared to post-treatment outcomes among calves treated once, twice, or three times during a 46-day observation period. Error bars denote 90% confidence intervals.



*Mixed models with a random effect to account for lack of independence among pens.

**Different superscripts denote significant differences (P<0.10) between treatment groups. All pairwise comparisons were adjusted for multiple comparisons (Tukey method). Comparisons were only made between the pre and post estimate for the respective BRD treatment number; not across treatment numbers.

FIGURE 2B. Model-adjusted averages* for activity among beef calves prior to BRD diagnosis and treatment compared to post-treatment outcomes among calves treated once, twice, or three times during a 46-day observation period. Error bars denote 90% confidence intervals.



*Mixed models with a random effect to account for lack of independence among pens.

**Different superscripts denote significant differences (P<0.10) between treatment groups. All pairwise comparisons were adjusted for multiple comparisons (Tukey method). Comparisons were only made between the pre and post estimate for the respective BRD treatment number; not across treatment numbers.

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