

## **Influence of the at-arrival host transcriptome on bovine respiratory disease incidence during backgrounding**

Mollie M. Green, Amelia R. Woolums, Brandi B. Karisch, Kelsey M. Harvey, Sarah F. Capik, Matthew A. Scott

### **Supplemental File S1: BRD Evaluation and Scoring System**

#### **0 = Normal**

**1 = Mild BRD** including one or more of the following signs:

- elevated respiratory rate for the environmental conditions.
- mild to moderate gauntness
- mild depressed attitude: not as alert as expected when viewed from a distance. becomes alert when animal sees human observer.
- shallow or dry cough

Cattle with score of 1 may also have cloudy, white, or yellow nasal discharge.

**Nasal discharge in the absence of any other abnormalities is not enough for a score of 1.**

**2 = Moderate BRD** including one or more of the following signs:

- mild or moderate depression
  - lethargic, but may look alert when approached.
  - head carriage lower than normal, but returns to normal when approached.
  - hiding behavior: tends to stay behind other cattle, relative to the observer.
- mild to moderate muscle weakness
  - stepping slowly when walking, or mild incoordination
  - droopy ears
- repeated coughing
- moderate gauntness
- breathing with mild to moderately increased abdominal effort

Cattle with a score of 2 may also have:

elevated respiratory rate for environmental conditions.

clear, cloudy, white, or yellow nasal discharge.

**3 = Severe BRD** including one or more of the following signs:

- severe depression or weakness
  - lethargic and does not look more alert when approached.
  - low head carriage, does not return to normal when approached.
  - does not move away from examiner as expected when approached.
  - cross stepping
- repeated deep cough.
- severe breathing effort
  - open mouth breathing or panting.
  - moderately to markedly increased abdominal effort.
- standing but does not move unless directly stimulated.
  - if the animal moves, it is very weak: drags feet, sways, stumbles, falls down.

- eyes may be very sunken, abdomen may be very gaunt.

Cattle with a score of 3 may also have:

elevated respiratory rate for the environmental conditions.  
clear, cloudy, white, or yellow nasal discharge  
and/or moderate to extreme gauntness.

**4 = Moribund (near death)**

- Recumbent and does not rise when approached or directly stimulated.
- Can rise but stumbles and falls repeatedly/is too weak to remain standing.

Moribund animals may also have signs described for score of 1, 2, or 3.

Coughing may be heard from animals with any score.

NOTE: sometimes animals near death may act aggressively, trying to charge an observer.

**BRD Case Definition**

BRD score = 1 or 2 AND have a rectal temperature  $\geq 104$  °F

OR

a BRD score  $\geq 3$  regardless of rectal temperature.

WITH

no other obvious signs of disease (lameness, diarrhea, swollen legs, strange behavior, etc.)