Comparing Case Fatality Metrics Associated with First Treatment of Bovine Respiratory Disease

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Introduction

Bovine respiratory disease (BRD) is a leading cause of morbidity and mortality in beef feedlots, with antimicrobials serving as the mainstay of BRD therapy. Post-treatment outcome evaluation can provide information on characteristics of successful treatments and cases. Knowledge gaps exist in identifying potential relationships between risk factors and post-BRD treatment success.

Objective

- To identify risk factors associated with case fatality risk with BRD mortalities and case fatality risk from all-cause mortality.

Materials and Methods

- Data were collected across 14 US feedyards from 2016 to 2021.
- 132, 527 individual cattle comprised this research.
- Case fatality rate (CFR) for BRD mortalities were identified as animals that were treated for BRD on first pull and died of BRD over all animals treated for BRD on first pull
- CFR for all mortalities were identified as animals that were treated for BRD and died of any cause over all animals treated for BRD on first pull
- Models were created using generalized linear mixed models in RStudio version 4.1.0 by the glmer function.

Results

- Significant factors for both case fatality rate definition models included:
  - In Weight Category
  - Sex
  - In Month
  - Event Days on Feed Category
  - Temperature Category
  - Day of Week
- Being pulled on Wednesday resulted in a higher CFR than those pulled on Thursday of the all death categories while no day of week affect was seen in CFR of BRD deaths
- Heifers overall had a higher CFR than steers

Day of Week CFR for All Deaths

Sex CFR for All Deaths

Sex CFR for BRD Deaths
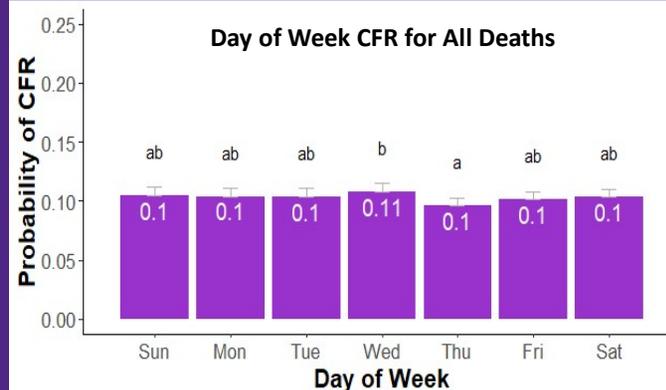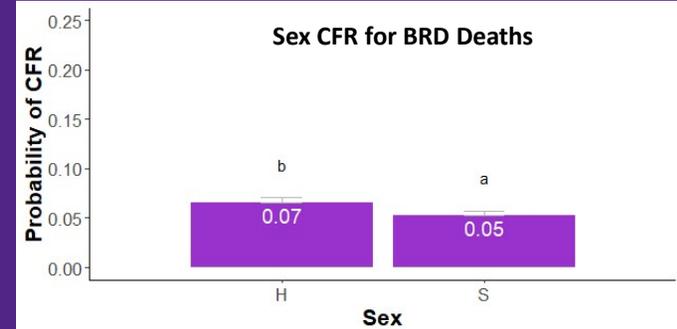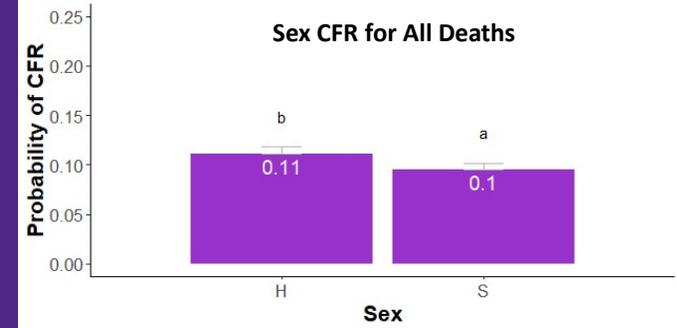
Conclusions

- BRD deaths account for about 50% of the mortalities in a feedlot setting
- Many variables impacting BRD case fatality rate exist and should be evaluated for potential interventions

Acknowledgements

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