Systematic assessment of percent lung involvement and gross pulmonary lesions in feedlot mortalities

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Introduction

Feedyard mortality at any point of the feeding phase is a major loss, and the time and resources available for necropsies are limited. A more in-depth understanding of pathology associated with mortalities may lead to improved prevention and treatment plans.

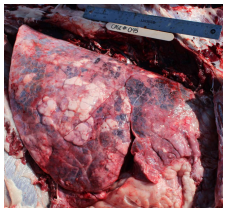


Image 1.0 (above) shows Acute Interstitial Pneumonia (AIP) with 96.3% lung involvement. The median for AIP cases is 93% lung consolidation.

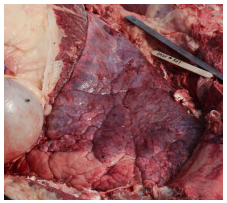
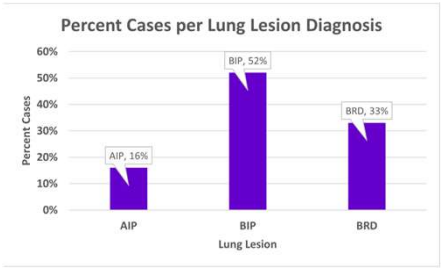


Image 2.0 (above) shows Bronchopneumonia (BRD) with 92.5% lung involvement. BRD cases had a median lung consolidation of 70%.

Image 3.0 (above) shows Bronchopneumonia with an Interstitial Pattern (BIP) with 100.0% lung involvement. The median for BIP cases was 96% lung consolidation.



Graph 1.0 (above) Out of 129 primary respiratory cases, 16% were AIP, 52% were BIP, and 33% were BRD.

Materials and Methods

- A systemic necropsy of all body systems except neurological was conducted
- Percent lung consolidation was collected in ten percent increments of each lung lobe, as depicted in (Figure 1.0)
- Lung consolidation data were then entered into a conversion equation, based on previous literature, for total lung effected
- Yard treatment history was collected the day following the necropsy

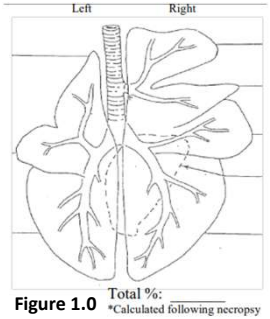


Figure 1.0

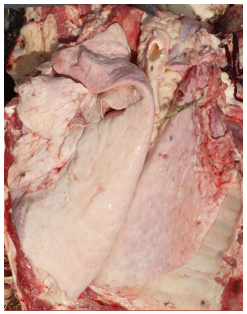


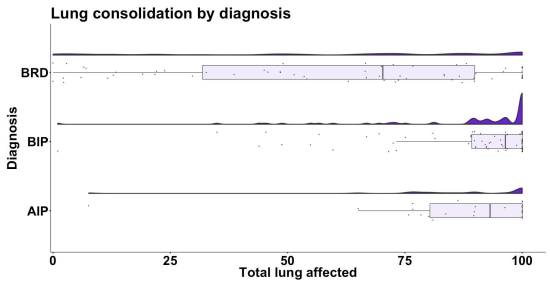
Image 4.0 (above) depicts how lung lobes were laid out for data collection

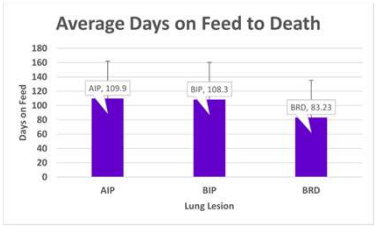
Objectives and Hypotheses

- Characterize the percent lung involvement and type of pulmonary lesion in cattle based on:
  - Lesion type
  - Presence or absence of specific lesion characteristics (e.g. abscesses, pleuritis)
- Determine potential differences in pulmonary lesion differences based on:
  - Days on feed at death
  - Days from treatment to death
  - Previous treatment history
  - Animal demographics known at arrival

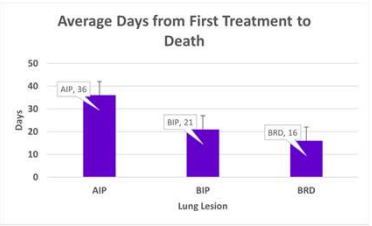
Results and Discussion

- 129 mortalities included primary lung lesions BRD (n=42), AIP (n=20), and BIP (n=67)
- The highest percentage of cases with abscesses was BIP at 57%, compared to 20% and 36% of AIP and BRD
- More BRD cases (79%) had pleuritis compared to only 40% and 52% of AIP and BIP cases
- Out of BIP cases, 24% went untreated compared to 20% for AIP and 14% for BRD cases
- Across the female population, 53% of cases were BIP, 33% BRD, and 14% AIP





- Graph 2.0 (above) shows a distribution of total percent lung affected per diagnosis. Each individual dot represents one case. These cases include secondary and tertiary respiratory cases.
- Graph 3.0 (above) Average days on feed to death was 109.9 days for AIP, 108.3 for BIP, and 83.2 for BRD.
- Graph 4.0 (right) Average days from first treatment to death were 36 days, 21 days, and 16 days for AIP, BIP, and BRD respectively.



Conclusions

While necropsies require time and resources, they become valuable in assessing the common diseases found in feedyards. Out of the 129 mortalities observed, most had over 78% disease involvement in the lungs. Another valuable pattern was most cases survived less than 40 days past the first treatment. With this research, professional feeders and caretakers can detect and treat cattle earlier in the feeding phase.

Acknowledgements

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References

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