

The Use of Lung Biopsy to Determine Early Lung Pathology and Its Association with Health and Production Outcomes in High-Risk Feedlot Steers

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Introduction

The purposes of this study were to determine if lung biopsy can be used to characterize pulmonary pathology at feedlot arrival and in sick calves within the first 30 days on feed; to determine if lung pathology is associated with health and production outcomes; and to determine the microbiological agents associated with early lung pathology using lung biopsy.

Materials and Methods

One hundred feedlot steers at high risk of developing respiratory disease were enrolled in the study from 20 pens within a commercial feedlot. Study animals were enrolled in three different groups: sick on arrival (SA) consisting of 27 study animals and 13 control animals; pen pulls with no fever (NF) consisting of 14 study animals and seven controls; and pen pulls with an undifferentiated fever (UF) consisting of 26 study animals and 13 controls. Live lung biopsies were collected from the right middle lung lobe at three different times within the first 30 days of the feeding period, about two weeks apart. All samples were histopathologically evaluated and were assessed for the presence of *Mycoplasma bovis*, *Mannheimia haemolytica*, *Histophilus somnus* and bovine viral diarrhoea virus with immunohistochemistry.

Results

A total of 295 lung biopsies were performed yielding 210 (71.2%) lung samples that were sufficient for histopathological evaluation. Immunohistochemistry was performed on all lung biopsies recovered yielding one *Mycoplasma bovis* positive lung sample from the UF group.

Significance

This method of lung biopsy appears to be an effective method for acquiring lung tissue for histopathological evaluation, however this method does not appear to be an effective method for determining the microbiological agents associated with early lung pathology. The association of lung pathology with health and production outcomes is still pending as these steers are currently finishing the feeding period, however the results will be available at the convention. We would like to thank Western Feedlots Ltd., High River site, High River, Alberta, for their cooperation with this project. This study was funded in full by Alberta Beef Producers (ABP), Calgary, Alberta.