Testing Frequency and Results of Cases of Feedlot Cattle Submitted to Kansas State University Veterinary Diagnostic Lab for Bovine Respiratory Disease

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Introduction

Bovine respiratory disease (BRD) is a multifactorial disease of cattle that results in large economic losses to the cattle industry. BRD results from various factors leading to susceptibility of cattle to respiratory tract infection by one or more bacterial and viral pathogens. These pathogens include *M. haemolytica*, *H.somni*, *P. multocida*, *Pseudomonas* spp, *A. pyogenes*, *Mycoplasma bovis*, bovine coronavirus, BRSV, BVDV, IBR and PI-3. The purpose of this study was to determine the frequency in which type of diagnostic tests were being requested by practitioners for BRD submissions and the results of these tests.

Materials and Methods

All subjects of the study were cattle processed by the Kansas State University Veterinary Diagnostic Lab (KSVDL) for signs of BRD between October 2005 and December 2007. Cases were identified based on a search of the KSVDL database based upon a guided keyword search that encompassed all cases with a diagnosis of pneumonia or bronchopneumonia, regardless of presenting symptoms. These cases were then individually analyzed to determine relevance based upon diagnosis by the pathologist assigned to the case. Relevant cases were defined as those cases with a necropsy and/or histopathology diagnosis of any form of bronchopneumonia, pneumonia or pleuropneumonia. Cases with a finding of atypical interstitial pneumonia or aspiration pneumonia were excluded, as were cases pertaining to animals of a known age of less than four months or greater than two years, cases concerning dairy cattle and cases concerning breeding stock. Cases were submitted to the KSVDL as either 1) a whole carcass for any one or all of the following: necropsy, histopathology, bacterial culture, *M. bovis* testing and viral isolation or 2) tissue samples or swabs for one or all of the following: histopathology, bacterial culture, *M. bovis* testing and viral isolation.

From each case file, it was then determined whether the following were performed on a case by case basis: histopathology, bacterial culture, *M. bovis* testing and virus isolation. If performed, results of each were recorded. When pathogen testing was performed, results were recorded as positive or negative.

Results

Two hundred, eighty-five cases were analyzed in this study. Sixty-seven of the cases submitted were not tested for bacteriology. Of the cases in which bacteriology was requested, 44 cases did not isolate any bacterial species (20%). In the cases resulting in culture of bacteria, 88 contained *M. haemolytica* (40%), 67 contained *H. somni* (31%), 67 contained *P. multocida* (31%), six contained *Pseudomonas* spp (2.7%), and 22 contained *A. pyogenes* (10%). Of these cases, 71 contained two of the previously mentioned species and five contained three species. *M. bovis* testing was not requested for 203 of the submitted BRD cases (71%). Sixty three of the cases submitted for *M. bovis* testing were positive (77%). One hundred nine cases were untested for viral species (38%). Four samples were positive for bovine coronavirus (2.3%), 13 were positive for BRSV (7.4%) and 31 were positive for BVDV (17.6%). No positive results of IBR and PI-3 were found. No cases tested positive for multiple viral species.

Significance

Most pathogens responsible for BRD result in indistinguishable gross and histopathological lesions. Fewer BRD cases submitted to the diagnostic laboratory are tested for *M. bovis* and viral species relative to bacterial species. The most prevalent isolated bacterial specie associated with BRD was *M. haemolytica*. *M. bovis* isolation was requested for 29% of the cases, however it was isolated in 77% of the samples tested. BVDV was the most commonly isolated virus associated with BRD cases in this study. This study did not account for stage of disease or prior treatment of the animal before it died. While treatment and preventative strategies are similar between different BRD etiologies, identification of BRD pathogens could help producers effectively target and control BRD within their feedlots.