Vet's Corner: Pharyngeal Swab for Respiratory Disease Diagnosis

A new technique that is simple and safe to perform, is giving us specific pathogen diagnosis for bovine respiratory disease (BRD). In past Vet's Corner articles, methods for antibacterial selection and pricing have been described. For strategic vaccination development and treatment selections, a rapid, accurate diagnosis of the pathogens involved is important.

Testing in the past has had its share of problems for the practicioner. Blood serology testing requires two samples collected 3 weeks apart so the diagnosis is made after an outbreak has subsided, and the results are hard to interpret because they are complicated by previous vaccination and products. Post mortem lung samples submitted for culture, histopathology, and immunology studies often times give the secondary pathogen that overgrew the original virus or bacteria; so that the actual original cause of BRD is missed.

The procedure described by Dr. Don Sockett, U of Wisconsin Diagnostic Lab, involves the use of a double-guarded culture swab, that is inserted a predetermined distance from the nostril to the deep pharyngeal area at the back of the throat. It is best to obtain samples from 4-6 calves at the beginning of an outbreak, preferably before antibacterial treatment (like mastitis cases, it is best to pull a sample before treatment). Two swabs are inserted on each calf; one is placed in bacterial media and the other goes into viral transport media.

If there is a positive bacterial pathogen such as Pasteurella, Mannheimia, or Salmonella, a bacterial sensitivity can be performed to help eliminate non effective treatments. The addition of a specific bacterin to the farm's strategic vaccination program can be made based on the result of the bacterial culture. A positive for IBR, BRSV, or BVD can lead to enhanced strategic use of MLV vaccines or eliminate the use of expensive unnecessary antibacterials. Emerging diseases like Corona virus and Mycoplasma have turned up in our investigations to help explain why our current vaccination programs did not prevent BRD outbreaks.

A complete BRD investigation includes identifying risk factors such as ventilation, overcrowding, and sanitation and the search for underlying diseases such as ruminal acidosis and parasitism. Simply going on a "bug hunt" with pharyngeal swabs and coming up with the proper vaccine or treatment will not cure the problems that set up the calf's immune for failure.

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