**WHISPER® VALIDATION**

**Whisper® Lung Score Histopathology Study – Demonstrating Sensitivity and Specificity**

Whisper® was first evaluated with a histopathology study whereby Whisper® lung scores were used to predict the presence of BRD lung lesions. The results of this 22 sample necropsy study demonstrated the statistically significant (p < 0.05) predictability of Whisper® lung scores and the following BRD lung lesions: Interstitial Pattern, PMN Infiltration, Monocyte Infiltration, Diffuse Distribution, Chronic Inflammation. The results also depicted the pathophysiological time course of disease progression one would expect to observe with disease severity.

**Multi-Feedlot/Multi-User Whisper® Lung Score Analysis – Demonstrating Reliability and Objectivity**

An analysis of 9,242 BRD cases was performed where each animal was given both a Whisper® lung score and human lung score. Animals were from multiple feedlots differing widely in; climate, animal risk purchasing strategies, mortality rates, and user lung scoring experience. The results show that Whisper® lung scores from each feedlot had similar distributions despite; different users, heterogeneous conditions, and widely differing feedlot management practices. Whisper® lung scores tended to have median scores in the “Mild Acute” region of scores whereas human lung scoring varied significantly in both median score regions and distribution shapes.

**Whisper® Lung Score Case Fatality Analysis – Demonstrating Predictability**

Analyzing Whisper® lung scores from 9,767 first pulled BRD animals, a logistic regression model revealed a statistically significant predictability of animal mortality using Whisper® lung scores (p < 0.0001). These cases were obtained from multiple heterogeneous feedlots spanning multiple feedlot turns. The analysis results show that the likelihood of mortality increases significantly for each increase in Whisper® lung score.