Dear Colleague

We are very pleased to announce that as of September 1, 2018, the VeriPrime Research Division and VeriPrime Livestock Production Physiology Laboratory will take residence in the Research Innovation Center (RIC) located on the Colorado State University Foothills Campus, Fort Collins, CO. Also, as part of the CSU Infectious Disease Research Center, RIC provides a unique opportunity for industry and academia to share vital infrastructure, instrumentation, and have access to the best and the brightest as we advance our research.

The VeriPrime Research Division, Livestock Production Physiology Laboratory, and Analytics are subsidiaries of VeriPrime Beef Cooperative whose membership represents >60% of the feeder cattle industry.

VeriPrime Research Division has been actively engaged in researching oxidative stress in feedlot cattle for over four years, and just recently in dairy cattle. Oxidative stress encompasses the effect of environment, nutrition, stage of production, muscle accretion, milk production, and management practices on the overall production of metabolic toxins and their impact on redox equilibrium within cellular systems. Disruption of the normal redox equilibrium leads to cellular damage, apoptosis, DNA damage, and detrimental changes in cellular messenger systems, all of which contribute to disease, distress, and inefficient production of meat and milk. These changes in redox equilibrium are identified through oxidative stress biomarkers malondialdehyde and 4-hydroxynonenal, and monitoring anti-oxidant status within the animal. A few of the disease conditions affected by oxidative stress are bovine respiratory disease, late day acute interstitial pneumonia, gastrointestinal disorders (leaky gut), liver abscesses, and lameness.

This work has led to the uncovering of progressive joint and tendon disorders, especially in finishing stage feedlot cattle. Our findings suggest that rapid growth and oxidative stress leads to this disorder and is emerging as one the most urgent animal welfare issues. There is a definite increase in pain under what is considered "normal and accepted" production practices. We believe these observations are a significant precursor to Fatigue Cattle Syndrome in harvest ready cattle. Our preliminary work has demonstrated physical changes in conformation, motion, changes in the infra-red signature of joints indicating inflammation, acute phase protein response indicative of inflammation and increase prostaglandin E-2 (PGE-2) which is a potent biomarker and initiator of the pain response and is increased under oxidative stress situations.

We cannot fix what gets broken until we can understand and identify those changes in cellular systems that lead to distress and disease. In 2017 VeriPrime established its own laboratory to further our research. By expanding the VeriPrime Livestock Production Physiology Laboratory, one of very few laboratories dedicated to researching oxidative stress and pain in livestock, to the Research Innovation Center will enable us to move forward and continue to identify interventions in nutrition, management, and environment that will significantly benefit the cattle.

Sincerely
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