

Translational AI Center (TrAC) Seminar - Fall 2021

James E Koltes

October 21 at 12:00 noon

<https://iastate.zoom.us/j/9378976918>

Development of Genetics, Genomics and Phenomics tools to enhance dairy cattle sustainability

Production of milk and dairy products from cattle are critical to providing essential nutrients to a growing population. Considerable effort has been dedicated to collecting and cataloguing a wealth of phenotypes in dairy cattle to improve production efficiency. Genetic selection in dairy cattle has been the major driver of the improved efficiency. However, some phenotypes important to understanding efficiency are expensive, time consuming and laborious to collect. For these traits, new cost-effective phenotypes need to be discovered to improve upon current selection strategies. The focus of my groups research program has been to develop new genetic, molecular and sensor-based tools to help improve feed efficiency, animal health, and correlated factors that can be used to improve dairy cattle feed efficiency, welfare and resilience to illness. Our research has identified novel sensor measures as new information sources for use in understanding variability in feed intake in dairy cattle. Current and future research is focusing on the use of molecular phenotypes such as metabolites from blood and milk as well as image data to improve our understanding of the genetics of efficiency in cattle. The long-term goal of our research is to identify genetic variants and mechanisms responsible for variability in health and efficiency related traits for use in selection as well novel phenotypes to monitor health and feed intake.

Short Bio

Dr. James Koltes is an Assistant Professor in the Department of Animal Science within the Animal Breeding and Genetics group at Iowa State University. Dr. Koltes received his BS in Dairy Science and Genetics from the University of Wisconsin-Madison and PhD from Iowa State University in Genetics. His research at focuses on the use of new tools such as sensors and biomarkers in the genetic improvement of feed efficiency and health in dairy cattle. He also works on development of computational tools and resources to advance the application of genomics in livestock breeding. He also serves as the co-coordinator for the NRSP8 USDA multistate Bioinformatics program which oversees tools development, data sharing, database development and training programs for livestock genomics researchers in the United States.