

SNACK AND FACT:

Food Animal Production in the Genomics Era



October 24, 2016

1300 Longworth House Office Building/ Washington D.C.

Hosted by the American Society of Animal Science

12:00 – 12:10 PM

Introduction and Goals

Dr. Penny Riggs

Texas A&M University & ASAS

Public Policy Committee Chair

12:10 – 12:25 PM

A Brief Overview of Genomics and Its Impact on Society

Dr. Penny Riggs

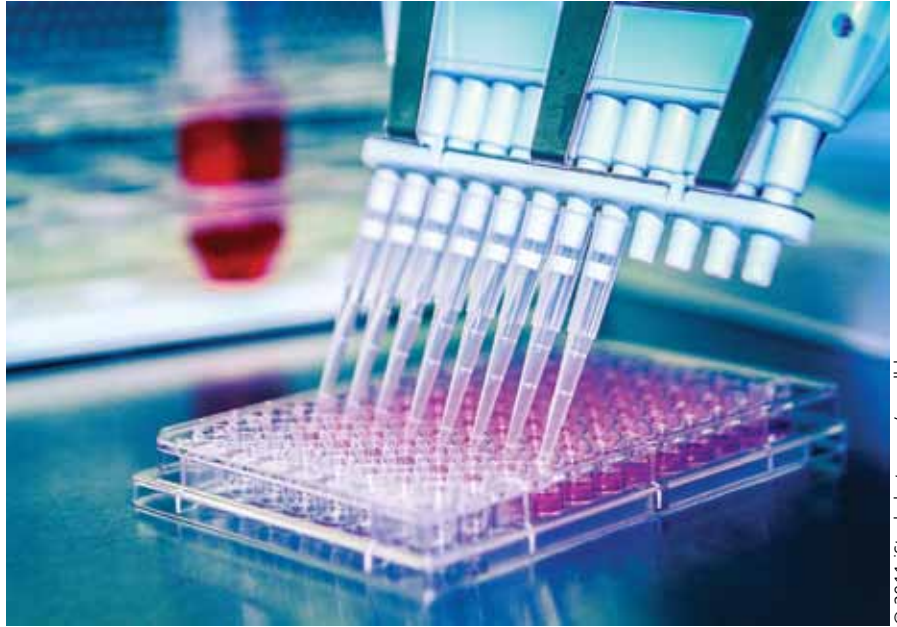
Texas A&M University

12:25 – 12:50 PM

Successful Application of Genomics Advances for Dairy Cattle

Dr. Kent Weigel

University of Wisconsin-Madison



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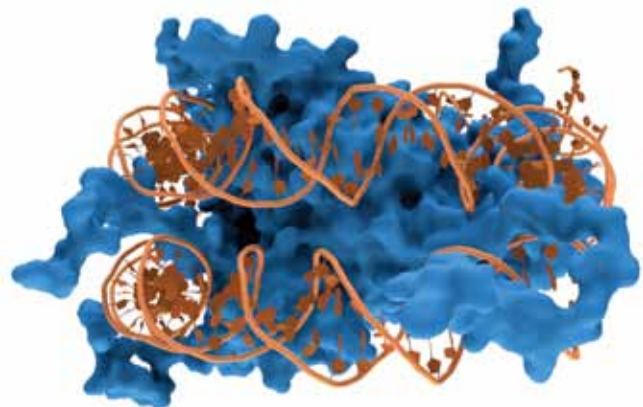
Practical application of genomics research is rapidly expanding.



The use of genomic selection in dairy cattle breeding programs allows dairy farmers to improve their herds' reproductive efficiency.

Genomics is a field that is rapidly expanding into everyone's lives as technological advances and reduction of costs make it possible to read nearly all of the nucleotide "letters" that make up our DNA and the DNA found in every living organism. This knowledge can be used to improve the health and well-being of humans, livestock, and companion animals. These technologies also aid the production of sufficient and nutritious animal and plant-sourced foods.

The January 2016 issue of *Animal Frontiers* discusses animal breeding in the genomics era. One of the greatest examples of successful implementation of new tools is the use of genomic selection in dairy cattle breeding programs. This method uses the knowledge of DNA sequence plus physical traits to help predict the best animals to be used for breeding programs, resulting in productive and efficient herds.



A representation of a single nucleotide polymorphism.

Source: commons.wikimedia.org/Thomas Spletstoesser



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Researchers continue to study the influence of genome technologies on quality traits of beef cattle.

Genomics research in livestock and companion animal species provides a better understanding of mechanisms responsible for development of specific physical characteristics, including how variations in genes affect:

- Disease resistance or susceptibility
- Nutrient content
- Meat quality
- Rate and efficiency of growth
- Response to medication or environment

Better understanding of how genes work in animal species also has direct relevance for improving human health, nutrition, and well-being. Worldwide investments in genomics research continue to increase as advances in this area will have tremendous impact on food security and health. Continued support of basic research by federal agencies, private foundations, and industry will help drive and sustain American innovation and success.



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Continued support of basic research is critical to understanding the role of genomics in human health and well-being.



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Ampoules of frozen bovine semen in liquid nitrogen canister.



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DNA double helix



PENNY K. RIGGS is Associate Professor of Functional Genomics in the Department of Animal Science at Texas A&M University. Dr. Riggs' current research program investigates the functional role of genes and gene products in skeletal muscle to identify mechanisms important for muscle growth and development, as well as quality traits in beef. She teaches a graduate course in developmental genetics, and also developed a course funded by NSF for both undergraduate and graduate students to explore social, ethical, and policy issues related to genome technologies and their impacts on society.

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KENT A. WEIGEL is Professor and Department Chair of Dairy Science at the University of Wisconsin - Madison. He is an expert in genomic research involving dairy cattle and genetic selection of dairy cattle. Dr. Weigel's research has focused on international genetic comparisons, genotype by environment interactions, genetic evaluation of health and management traits, and strategies to control inbreeding.

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ASAS Mission

The American Society of Animal Science is a membership society that supports the careers of scientists and animal producers in the United States and internationally. The American Society of Animal Science fosters the discovery, sharing and application of scientific knowledge concerning the responsible use of animals to enhance human life and well-being.

