Animal Science Seminar Series

When: Tuesday 29th August, 1:00 – 2:00 pm

Where: Wright Lecture Theatre

CAN TECHNOLOGY HELP JUMP-START AGRICULTURE DEVELOPMENT? THE CASE OF SMALLHOLDER DAIRY CATTLE GENETICS IN THE DEVELOPING WORLD

Professor John Gibson

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Influential economist Jeffrey Sachs and tech-friendly institutions such as the Bill and Melinda Gates Foundation (BMGF) believe that modern technologies can be used to transform the agriculture development process. Others point to the long list of silver bullet technologies that have done little but gather dust. I present the experience we have had working with various international collaborators to understand the needs and find solutions for smallholder dairy farmers in Africa and India. Smallholder dairying supplies 85% to 100% of the milk in countries of East Africa and India, where demand for milk is high and continues to grow rapidly. Smallholder dairying is primarily based on crosses between indigenous cattle and exotic dairy breeds, combining the adaptation to difficult environments of the indigenous breeds with the milk producing potential of the exotic breeds. But the optimum breed combination for the wide variety of smallholder conditions is generally not known and current breeding systems often fail to deliver to farmers the genotypes of cow they need. Funded by the BMGF, we have combined traditional intensive field recording methods, with rapid data capture and high density genotyping technologies to understand the diversity of genotypes that farmers use in East Africa and to determine what breed combinations work best for different types of smallholder. We are exploring whether genomic tests for breed composition can be developed and applied at sufficient low cost that they could be used routinely to support sale, purchase and breeding of smallholder cows and bulls. We are also exploring whether smart data capture, sms messaging and targeted use of genotyping and use of sexed semen can support sustainable genetic improvement and delivery systems for smallholders.

Biography

John Gibson is Professor and Director of International Development and Director of the Centre for Genetic Analysis and Applications in the School of Environmental and Rural Science at UNE. Previous appointments have included Transitional Head of School for ERS at UNE; Program Director of Genetics and Genomics at the International Livestock Research Institute, Nairobi, Kenya; Professor of Genetics at the University of Guelph, Canada; and Research Scientist at the Animal Breeding Research Organization (now the Roslin Institute), Edinburgh, Scotland. His research has covered a wide range of theoretical and highly applied problems in livestock, fish and crop genetics and genetic improvement, and in livestock systems.

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