

McMEEKAN MEMORIAL AWARD

Susan Anne McCoard

BSc (Hons), MSc Animal Science PhD (Massey University)

Sue gained her PhD in “The development and growth of skeletal muscle in fetal and neonatal lambs” in 1998. During 2.5 years at USDA-ARS Meat Animal Research Centre, Sue discovered biomarkers of gonadogenesis, and identified critical developmental time-windows and influences on gonadal development. She also created a comparative map of the porcine X chromosome allowing selection of candidate genes for QTL and improved understanding of genetic variation in sperm production.

In 2002, she began a Postdoctoral fellowship with AgResearch studying molecular regulation of milk protein synthesis. Her research was recognised by the National FiRST Scholarship Award for Communication in Science in 2002 and NZBio Emerging Biotechnologist of the Year in 2005.

Sue became a full-time scientist in 2005 and Senior Scientist in 2006 continuing to focus on mammary protein synthesis. This work highlighted the importance of translational control of protein synthesis in response to external stimuli and of mTOR intracellular nutrient-sensing signalling cascade as a target for potential intervention technologies.

More recently, Sue has led research on the interaction between nutrient inputs and physiology during early life, and impacts on survival, health, welfare, and lifetime performance in ruminant livestock. This work took an interdisciplinary co-innovation approach with leading national and international research collaborators, industry partners and farmers and has received recognition through invited reviews in international publications and conferences. Sue also collaborates with colleagues in Australia, UK and Patagonia (Chile) on improving lamb survival.

In partnership with industry, Sue led research to develop early life nutrition strategies to increase survival, growth, and lifetime productivity of artificially reared lambs and calves. This involved working with the emerging dairy sheep industry to develop science-based lamb-rearing options. Impacts included reducing wastage, improving production efficiency and sustainability, and contributing to meeting consumer animal-welfare expectations. This research has also contributed to improvements in feed formulations by manufacturers, and feeding guidelines.



Sue held management positions as Science Team Leader for Animal Nutrition and Physiology (2013-15) and Science Impact Leader for Animal Science (2015-2020) and resumed her full-time Senior Scientist position in 2020. Sue supervised five PhD, seven Masters, multiple interns and examined several PhDs. She also secured and managed several valuable research contracts.

Sue published 50 journal articles, two book chapters, >65 conference proceedings papers (25 in NZSAP), and numerous national and international conference abstracts. She also holds two patents. She disseminates her research to scientific, industry and

farming audiences through conferences, industry forums and workshops, farming magazines, newspapers, radio and television articles and invited presentations at workshops and conferences in NZ, Europe, USA and Chile.

Sue has served on the NZSAP Committee, the European Association of Animal Production working group on lamb survival and Associate of SheepNET including hosting the international delegation. She has been a member of several national and international societies and is Associate Editor of Amino Acids Journal. Sue supported science education as a trustee of the Te Manawa Science Centre Trust, judging at school science fairs, guest presentations on careers days and hosting high-school students in the workplace.

In the last five years, Sue made a major contribution to livestock production through nutritional programming research, publishing 23 papers in peer-reviewed journals, an invited book chapter, and an open-access lamb-rearing manual for farmers. Sue’s contribution to dairy sheep research was recognised as part of the AgResearch Impact Team Award in 2019. Sue’s contributions to fundamental and applied research, coupled with strong working relationships with stakeholders, has enabled rapid industry uptake of science outcomes, continued co-design of fundamental and applied research projects, and new commercial opportunities with industry to develop nutritional intervention technologies to improve animal performance, eco-efficiency and welfare.

This outstanding contribution to animal production is worthy of the McMeekan Award.

*Sam Peterson
Kirsty Hammond
David Stevens*