THE UNIVERSITY OF SYDNEY

Farm Animal Health

Healthy animals produce healthy food

Promoting animal and public health through conduct of innovative teaching and world class multidisciplinary research in infectious diseases of farm animals in partnership with animal industries

About the Group

We are a multidisciplinary group of academics and researchers passionate about improving animal health and welfare. By conducting cutting edge research to understand the mechanisms of disease and by developing applied and cost-effective solutions for diagnosing, preventing and managing infectious diseases, FAH researchers strive to reduce the burden of infectious diseases on farm animals. Through innovations in biosecurity, nutrition and epidemiology via national and international partnerships, FAH aims to improve food safety, product quality and public health with the overall goal of achieving and maintaining food security. In the past five years FAH researchers has undertaken 25 projects with approximately $15m income; published 380 peer-reviewed articles and graduated 16 PhD students.

FAH Societal Impact

- Developed and validated a diagnostic test for Johne's disease that is currently the test of choice for surveillance programs in Australia and New Zealand.
- Research in Gudair® vaccine and sheep health statements contributed to changes in the National OJD Management Plan.
- Management approaches developed to prevent or reduce mortalities due to Pacific Oyster Mortality Syndrome (POMS) have been widely adopted by oyster farmers.
- Recommendations for on-farm biosecurity to reduce avian influenza risk incorporated into poultry industry biosecurity guidelines.
- Research that documented the extent of pig movement and associated risk for classical swine fever spread led to collaboration by Indonesia and Timor Leste on classical swine fever research and control.
- Developed and validated a very successful footrot vaccination program and commercialized the vaccine for sheep and goats.
- Developed and validated diagnostic tests for footrot which are universally used.
- Guiding science and policy on food security through developing strategies to increase smallholder farmer incomes by improving livestock health and production in the Greater Mekong Sub-region.
- Developing processing approaches to improve meat quality for the emerging alpaca meat industry.

FAH Partnerships

Key University Partners

Charles Perkins Centre (CPC)
Marie Bashir Institute for Infectious Diseases and Biosecurity (MBI)
Sydney Southeast Asia Centre (SSEAC)

Key External Partners

Animal Health Australia (AHA)
Australian State Agriculture Departments
Food and Agricultural Organization of the United Nations (FAO)
Monash University
World Health Organization (WHO)
World Organization for Animal Health (OIE)

Key Funding Partners

Australian Council for International Agricultural Research (ACIAR)
Australian Meat Processor Corporation (AMPC)
Australian Wool Innovation (AWI)
Fisheries Research and Development Corporation (FRDC)
Meat and Livestock Australia (MLA)
NSW Sheep Industry Fund
Rural Industries Research and Development Corporation (RIRDC)

FAH Researchers

Joy Becker is a *Senior Lecturer in Aquatic Animal Health and Production* and aims to increase the health and welfare of finfish in aquaculture through an integrated approach involving aspects of fish biology, pathology and epidemiology.

Kate Bosward *is a Senior Lecturer Veterinary Microbiology* with an interest in infectious diseases of livestock particularly those that can be classified as zoonotic including Q fever.

Russell Bush is an *Associate Professor in Livestock Production* who uses interdisciplinary methodologies and knowledge-based information dissemination strategies to improve the lives of farming communities and consumers through increasing the efficiency of quality food production.

Kumudika (Kumi) de Silva is a *Senior Research Fellow* with interests in the immunology of infectious diseases, vaccinology and gender equity and diversity.

Navneet Dhand is an *Associate Professor in Veterinary Epidemiology and Biostatistics* and aims to use epidemiological and statistical tools to improve public health and to solve difficult problems confronting animal industries.

Om Dhungyel is a *Senior Research Fellow* working in sheep health research with internationally recognized expertise in footrot and with distinguished achievements in footrot vaccine development and commercialization.

David Emery, *Professor Immunoparasitology,* is an expert in ruminant mucosal immunity, disease pathogenesis and vaccination for exotic and endemic infectious diseases and gastrointestinal nematodes.

Paul Hick is a *Senior Lecturer in Veterinary Virology* with a passion for utilizing laboratory science to improve detection and management of disease. He has a particular interest in aquatic animal health.

Karren Plain is a *Senior Research Fellow* with interests in animal resistance to infectious diseases and better understanding disease pathobiology. She was one of the principle scientists involved in the development of a new molecular diagnostic test for Johne's disease (HT-J).

Auriol Purdie is a *Senior Research Fellow* with interests in the interactions between a host and pathogen at the genomic and proteomic level and how these inform our understanding of the pathogenesis of disease.

Kathrin Schemann is a *Research Fellow in Veterinary Biostatistics and Epidemiology* and has interests in understanding farmers' biosecurity perceptions and practices. She applies psychological theories of human behaviour to identify barriers for the implementation of biosecurity practices.

Jenny-Ann Toribio, *Associate Professor in Epidemiology*, uses applied epidemiological methods to investigate the distribution of transboundary animal diseases and zoonoses, and to evaluate biosecurity practices to improve disease control in Australia and in developing country contexts.

Richard Whittington, *Emeritus Professor Farm Animal Health*, has led research on the pathobiology of *Mycobacterium paratuberculosis*, the cause of Johne's disease in ruminants, the immunology of *Dichelobacter nodosus* infection in sheep and infectious diseases of finfish and wildlife.

Current Projects

Title	Project Leader	Timeline	Funding Body
Disinfection measures to support biosecurity for ISKNV at aquaculture facilities	Joy Becker	2016-2017	FRDC
Q fever: How common is it and how can we best prevent it? Research to inform Q fever vaccine policy in Australia and Internationally	Kate Bosward	2013-2017	NHMRC
Village-based biosecurity for livestock disease risk management in Cambodia	Russell Bush	2015-2018	ACIAR
Improved tenderness of alpaca carcasses using combined processing techniques	Russell Bush	2015-2018	RIRDC
Development of a biosecure market-driven beef production system in Lao PDR	Russell Bush	2015-2020	ACIAR
Enhancing transboundary livestock disease risk management for poverty reduction in Lao PDR	Russell Bush	2015-2020	ACIAR
Linking life-time objective welfare and slaughter measurement data to optimise meat quality	Russell Bush	2017-2021	MLA and University of Sydney
Sustainable feeding and health risk practices in Cambodian livestock systems	Russell Bush	2018-2021	ACIAR
Developing zebrafish models for mycobacterial disease in livestock	Kumi de Silva	2017	MBI
One health reinvented: Can we predict brucellosis prevalence in bovines from that in humans?	Navneet Dhand	2016-2017	IPDF
One Health: Combating the threat of infectious diseases to protect Equine and Human Health	Navneet Dhand	2016-2020	Dalara Foundation
Cross-Reactive footrot vaccine development	Om Dhungyel	2015-2018	MLA
Investigation of lower virulent forms of footrot in NSW sheep flocks.	Om Dhungyel	2017-2019	NSW Sheep Industry Fund
Resilience on-farm: mechanisms, markers and applications	David Emery	2017-2020	MLA and University of Sydney
Prophylaxis and treatment of *Theileria orientalis*	David Emery	2017-2020	MLA and University of Sydney
Pacific Oyster Mortality Syndrome – closing knowledge gaps to continue farming C.gigas in Australia	Paul Hick	2015-2018	FRDC
Immune fitness as a measure of animal health, welfare and productivity.	Auriol Purdie	2017-2020	MLA and University of Sydney
Improving fish health management and production protocols in marine finfish aquaculture in Indonesia and Australia	Richard Whittington	2013-2017	ACIAR

Contact for further information:
Marion Saddington
Administrative Assistant
Sydney School of Veterinary Science
The University of Sydney
425 Werombi Road
Camden NSW 2570
Ph: +61 2 9351 1787
Email: marion.saddington@sydney.edu.au