



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Genes, Germs, Greenhouse Gases, and Gastronomy

Seminar at Beef 2024

Wednesday 8 May 2024





Genes, Germs, Greenhouse Gases, and Gastronomy

Wednesday 8th May 2024 | 9:45am - 11:15am | James Lawrence Pavilion Room A, Rockhampton Showgrounds, Beef 2024

Join The University of Queensland for an insightful seminar as beef industry leaders discuss how they are using technological advances from UQ in their operations, leading to a sustainable beef future.

Up and coming researchers will also present the latest wave of advances in genomics, vaccines, monitoring, breeding, and nutrition that are positively impacting risk mitigation, climate resilience, animal welfare and consumer satisfaction. These solutions will drive the future sustainability of beef industries for northern Australia and in tropical and sub-tropical regions of the globe.

Part 1 Beef research creating opportunities

Beef research experts will share the positive outcomes and impacts from key research projects for the industry.

Prof Ben Hayes

Professor Hayes is a world-leading genomics expert and is the co-inventor of genomic prediction for traits in dairy and beef cattle. Ben has extensive research experience in the genetic improvement of livestock, crop, pasture and aquaculture species, with a focus on the integration of genomic information into breeding programs. He is also a member of the National Livestock Genetics Consortium Taskforce and has recently been appointed the Research Director for ZNEAg CRC.



Prof Ala Tabor

Professor Ala Tabor joined UQ in October 2010, after 18 years of conducting research with the Queensland Government. She is a research-focused academic with a strong background in industry engagement associated with animal health and agricultural biotechnologies using genomics tools. Ala has been researching bovine venereal diseases for more than 20 years. Currently, she is screening a new Australian trichomonas vaccine and her team is developing novel 'single sample' molecular diagnostic methods for Trich and Vibrio in collaboration with industry.



Dr Sarah Meale

Dr Meale is a Senior Lecturer who joined UQ in 2017. Her research focuses on environmentally sustainable production by manipulating the rumen for reduced methane emissions and enhanced production. She brings a multidisciplinary approach to her research by examining the effects of nutrition and age on emission, gut microbiology, production performance and meat quality of an animal.



Prof Heather Smyth

Professor Smyth is a flavour chemist and sensory scientist who has been working with premium food and beverage products for the past 20 years. With a background in wine flavour chemistry, her expertise is in understanding consumer enjoyment of foods and beverages in terms of both sensory properties and composition. Prof Smyth has a special interest in describing and articulating food quality, understanding the regional flavours of locally grown produce, and modelling food flavour and textural properties using instrumental measurements.



Part 2 Next-Gen research on the horizon

Four PhD candidates will deliver a 3-minute thesis (3MT) facilitated by MC Professor John Gaughen from the School of Agriculture and Food Sustainability at The University of Queensland.

Moderator

Prof John Gaughan

John is a Professor in the School of Agriculture and Food Sustainability at The University of Queensland, Gatton, Australia. John has 129 publications in the areas of impacts of harsh climatic conditions on livestock, physiological responses to heat stress and investigating the impacts of climate variability on animal production and reproduction (beef, dairy, sheep). He is part of an international group which developed new thermal stress indices for livestock, a heat stress risk assessment model for feedlot cattle, and is working with a team in Australia to develop a thermal risk assessment platform for the northern grazing industries.

His team is currently developing a heat stress risk assessment model for working dogs. John's work has largely focused on gaining an understanding of animal's physiological responses to acute and chronic heat stress, the development of strategies to ameliorate the impact of high heat load, and the likely impact of future climatic conditions on animals (domestic and wildlife). John is also part of a team investigating the impact of climate and nutrition on calf survivability.



PhD Presenters

Mariano Parra AGFS PhD

“Novel alternatives to deliver anti-methanogenic compound in neonatal and mature cattle (2022-2025).”

Mariano Parra completed his Bachelor of Animal Science in Bogota, Colombia. He was then awarded a Colombian government scholarship to study for his Master's in Animal Science at UQ. After graduating, Mariano worked as a research assistant with Dr Sarah Meale and Dr Luis Prada e Silva which allowed him to publish three journal articles. Currently, Mariano Parra is a PhD candidate under Dr Meale supervision focusing on assessing the efficacy of traditional mechanism to deliver a promising anti-methanogenic compound in different beef cattle production systems, as well as evaluating novel delivery mechanisms to avoid daily additive supplementation.



Milou Dekkers AGFS PhD

“Patch grazing: dynamics of pasture ecology and diet selection in the tropical savannah rangelands (2016 to 2026).”

Milou H. Dekkers completed her BSc in Animal Science, in the Netherlands, majoring in epidemiology. She worked in process and project management before moving abroad. In 2007 she moved to Australia to study her first MSc in Natural Resource Management and in 2010 she completed her second MSc in environmental management. Milou has been working in the field of animal research for over 18 years and has worked on a large variety of animal research projects. She managed various projects and moved into a management role at the Queensland Animal Science Precinct (QASP) in 2012. In 2016, she became the Senior Manager of QASP; and in addition to her senior management role in the QASP she has been conducting her PhD part-time.



Harvey Santos QAAFI PhD

“Integrative omics of bovine trichomonosis for vaccine development (2022 – 2025).”

Harvey is currently the president of QAAFI's Student Association, and he holds a Bachelor in BioEngineering and Masters in Animal Vaccine Technology. In 2022, he joined QAAFI to work on a subunit Trich vaccine using genomics. Currently, there is no vaccine available for Trich in Australia, and the only way to control Trich is through culling positive animals. Developing a subunit vaccine has advantages, including simpler production. Its potential impact on the Australian beef industry is substantial, as a Trichomonosis vaccine could improve herd fertility and boost the productivity of the Australian beef industry.



Tatiana Briody QAAFI PhD

“Developing novel approaches to identify and model superior phenotypes in cattle (2021-2025).”

Originally from an Angus beef property in Western Victoria, Tatiana completed her Bachelor of Science at Monash University before moving to Brisbane in her Honours year to investigate bovine respiratory disease in feedlot cattle. She commenced her PhD with the University of Queensland in 2021, exploring new ways to protect cattle against endemic pathogens, such as pestivirus and bovine herpesvirus, beyond just vaccination. Throughout her candidature, Tatiana has gained valuable experience working with MLA and QDAF on projects tackling emerging biosecurity threats, including Lumpy Skin Disease Virus.



Part 3 Research impact and future investment

Industry leaders will join a panel discussion led by MC Jon Condon from Beef Central. Panel speakers will share what research innovations and technologies have made a positive impact on the industry and highlight priority areas for future beef research investment.

Moderator MC

Mr Jon Condon, Beef Central

As one of Australia's most experienced and respected agricultural journalists, Jon Condon has been part of the fabric of the nation's beef industry for his entire life. For 40 years he has specialised in reporting on the red meat and livestock industries. He spent his early life in the Northern Territory, where his family built and operated a successful export beef processing plant at Katherine, and an extensive cattle property on the Drysdale River in the East Kimberley. He holds a business degree in marketing and communications and spent most of his early career with Fairfax/Rural Press Ltd. In January 2011 he established a new business with fellow journalist, James Nason, launching the Beef Central website and a specialised red meat industry communications consultancy. The business has since extended into other related industries and sectors, via Sheep, Grain, AgProperty, AgTech and AgCarbon Central.



Industry Presenters



David Harris

Managing Director & CEO Australian Agricultural Company

Dave Harris was appointed Managing Director and CEO of Australian Agricultural Company in September 2022. Dave has worked extensively across the beef and cattle supply chain, including holding senior positions with Stanbroke and Smithfield Cattle Company, as well as running his private agricultural consultancy business and family farming operations in central west New South Wales. He first joined AACo in 2016 in a key role to improve the operational aspect of the business, before being appointed Chief Operating Officer in 2020. Dave's strong track record building and running integrated supply chains and his extensive knowledge of the Australian beef and cattle industries made him ideally suited to managing AACo's expansive operations across the Northern Territory and Queensland. As an executive, Dave is passionate about supply chain and product innovation, and building resilience in agricultural strategic frameworks. Over his time in the business, he has led the team in redesigning AACo's individual property business models to improve alignment with the company's strategy across its multiple supply chains. Dave holds a Bachelor of Rural Science from the University of New England, specialising in ruminant nutrition and meat science.



Richard Heath

CEO Zero Net Emissions in Agriculture CRC

Previous to this role Richard was Executive Director of the Australian Farm Institute, an independent agricultural policy research organisation. Richard is a Nuffield Scholar and was a farmer at Gunnedah for 20 years until 2012. Richard has also had his own AgTech consultancy business and was Associate Professor of Agronomy and Farm Management at the University of Sydney. He is currently also a non-executive director of the Grains Research and Development Corporation.



Rebecca Burnham

DBR & REB Grazing and Chair of Frontier Genetics

Rebecca Burnham was elected Chair of Frontier Genetics Inc in 2022. The catalyst for the formation of this unique 5000 breeder, genetic collaboration was the joint desire from members to provide a united approach to breeding, road testing and marketing beef genetics, with a focus on implementation of proven research and sires being 'ready to work'. In 2019, Bec conducted research under an International Nuffield Farming Scholarship examining how to further optimise genetic selection in Northern Australia, with a particular focus on selecting for profit and addressing the emerging consumer and environmental expectations. Prior to this she co-managed a breeding and fattening, GAP USDA Organic Brahman operation outside Alpha in Central QLD and completed a Bachelor of Education. Currently, Bec and her husband Dan Radel, operate DBR & REB Grazing, east of Augathella, in south west QLD. They run a commercial seedstock background and fattening operation and 2 nucleus seedstock breeding herds, selling measured & paddock prepared Brahman and Brangus genetics. Currently their brahman herd is engaged with the MLA Northern Repronomics and Northern Beef Genomics Projects.

Securing the future of global agriculture

The University of Queensland (UQ) has been contributing to the advancement of sustainable Agriculture in Australia for nearly 130 years.

Established as the Queensland Agricultural College at Gatton in 1897, UQ has grown to be a recognised hub for both research and for training generations of agricultural professionals.

Today, the university is home more than 600 agricultural specialists based across numerous facilities and is ranked #1 in Australia and #4 in the world for agriculture research.

Focusing on tropical and sub tropical environments, the university's research impact is delivered locally and across the world through collaborations, partnerships and alliances with universities, government agencies, non-government and community organisations and philanthropic foundations.

With world agricultural production under threat from climate change, UQ researchers are actively addressing issues affecting food security, sustainability and environmental impact. In order to achieve this, our researchers are contributing to more than 250 projects worth over \$70 million in grant funding.

This positions UQ as a recognised leader in creating and applying knowledge to directly support producers, growers, industry bodies, government policy and outcomes for regional communities locally and globally.

Ranked #1 for agriculture research in Australia, UQ's extensive expertise is led by the School of Agriculture and Food Sustainability (AGFS) and the Queensland Alliance for Agriculture and Food Innovation (QAAFI).

Our researchers work across multiple locations and collaborate with a diverse network of research, teaching and commercialisation partners including:

- ARC Centre of Excellence for Plant Success in Nature and Agriculture
- China Agricultural Economics Group
- Food and Beverage Accelerator
- UQ Agri-Food Innovation Alliance
- Centre for Nutrition and Food Sciences
- Centre for Animal Sciences
- Centre for Crop Science
- Centre for Horticultural Science
- ARC Training Centre in Predictive Breeding for Agriculture Futures.
- ARC Research Hub for Engineering Plants to Replace Fossil Carbon.
- ARC Research Hub for Sustainable Crop Protection.

UQ continues to provide dedicated facilities for research trials in addition to greenhouses, laboratories, teaching spaces, a 1000 hectare working farm, a commercial dairy and some of the best animal production and veterinary facilities in the southern hemisphere. UQ is also home to specialist analytical, environmental, biological, genomics, crystallography, imaging, mass spectrometry, microscopy, nuclear magnetic resonance and computational facilities to enable the delivery of world class research outcomes, value and safety of food.

Our Rankings



UQ is #1 in Australia for agriculture

NTU Performance Rankings of Scientific Papers for World Universities



UQ is ranked #4 globally for Agriculture Research

NTU Performance Rankings of Scientific Papers for World Universities



UQ is #1 in Australia for Biological Sciences

Times Higher Education Rankings 2023



UQ is ranked #1 in Australia for Food Science and Technology

Academic Rankings of World Universities 2023



UQ is ranked #1 in Australia for Environmental Sciences

QS World University Rankings by Subject 2023

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Partnership Opportunities

- Contract research
- Research collaborations
- Licensing agreements
- Field trials
- Industry sponsored student projects

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CRICOS Provider Number 00025B • TEQSA PRV12080
Published date: 17/04/2024



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