PRECISION BEEF

IMPROVING BREEDING, FEED EFFICIENCY, PRODUCTION AND BEEF FLAVOURS

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Wednesday 5 May 2021, 10am to 11:30am in the Paterson room, Rockhampton State High School

10:00   **SEMINAR WELCOME**
Prof Ben Hayes - Director, Centre for Animal Science, QAAFI at The University of Queensland
10:05   **NEXT GEN PHD BEEF RESEARCH ON THE HORIZON**
10:30   **PRECISION BEEF RESEARCH**
Prof Ben Hayes - Using genomics to more accurately select the most fertile bulls and heifers
A/Prof Luis Prada e Silva - Improving feed efficiency by measuring nitrogen in tail hair
Prof Mary Fletcher - Managing the impacts of Pimelea poisoning on cattle
A/Prof Heather Smyth - Flavour communicate your point of difference
11:00   **INDUSTRY PANEL DISCUSSION**
Russell Lethbridge, Werrington Cattle Company and MLA non-executive Director
Shannon Speight, Black Box Co, CEO
Bim Struss, Agforce, Regional Director Southern Inlands Qld
Hugh Killen, Australian Agricultural Company Ltd, CEO
11:30   **SEMINAR CONCLUDES**

MODERATOR MC

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, earning the trust and confidence of key stakeholders across the industry and developing a reputation for accurate, credible, informed and informative reporting.

RESEARCH PRESENTERS

Experts will share how research applied across the supply chain improves the precision of management, breeding, production and product quality.

Professor Ben Hayes

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

Professor Mary Fletcher

Prof Mary Fletcher is a natural product organic chemist and leads the Natural Toxin group within the Centre for QAAFI. Mary's current work focuses on the identification and analysis of natural toxins and other bioactives in a range of plants, fungi and agricultural products. Such toxins and bioactives can affect both human and animal health posing risks to livestock production, food safety and market access.

Associate Professor Luis Prada e Silva

A/Prof Luis Prada e Silva, is a leader in the area of ruminant nutrition. Luis brings perspective from the world's largest producer of beef, Brazil, where he had a previous appointment at the Universidade de Sao Paulo. Luis' has worked with different disciplines such as ruminant nutrition, ruminant physiology, rumen microbiology, ruminant reproduction, forage management, molecular biology, and economics of cattle production systems to improve cattle productivity.

Associate Professor Heather Smyth

A/Prof Smyth is a flavour chemist and sensory scientist who has been working with premium food and beverage products for the past twenty years. A/Prof Smyth has a special interest in describing and articulating food quality, understanding regional flavours of locally grown produce, and modelling food flavour and textural properties using instrumental measurements.

INDUSTRY PANEL

Beef industry leaders will discuss how applying new techniques across their business has improved results.

Russell Lethbridge

Werrington Cattle Company and MLA Board Director

Russell Lethbridge, with his family, run Werrington Cattle Company, a commercial beef cattle, breeding, growing and fattening enterprise. Werrington has been in the Lethbridge family for 124 years with the current branch of the family in ownership since 1980. The Werrington business runs over 13,000 head of cattle and comprises a breeding program on 120,000ha of natural eucalypt forest country, approximately 250km west of Townsville and 200km north of Hughenden in north Queensland. The business also consists of Rainmore Station, a 27,000ha property near Alpha in central Queensland. Mr Lethbridge has a deep understanding of cattle production systems, managing breeder and feeder cattle under extreme environmental conditions and pasture nutrition levels, utilising genetic selection and strategic herd management to achieve production and business success. In 2017 Mr Lethbridge became a Director of Meat & Livestock Australia Limited and Integrity Systems Company Ltd.

Bim Struss

Agforce, Regional Director Southern Inland Queensland

Anthony Struss – better known as "Bim" Struss, operates a commercial breeding operation, 'Havelock,' near Mitchell, for the EU, MSA and PCAS markets. He has been actively involved in the beef industry for over 40 years as a stock agent and live cattle exporter. Bim is currently the Agforce Regional Director for the Southern Inlands, Cattle Council of Australia Councillor, Maranoa Kangaroo Harvesters and Growers Co-operative Chairman and Director and member of the Mitchell & District Landcare Management Committee. Bim is eager to see the export beef industry develop, encourage more producers to take up accreditations and multiply the supply and demand advantage using available industry tools.

Shannon Speight

Black Box Co, CEO

Originally from Mount Isa, in North West Queensland, Shannon started her journey as a veterinarian in mixed practice. She quickly realised this wasn't for her and has worked across the northern beef industry for the past 7 years. One of her biggest achievements is coordinating the Northern Genomics Project looking into a DNA test for fertility in cattle. Her passion, dedication, leadership and drive to improve her industry was recognised through receiving the Zanda McDonald Award in 2019. Shannon started Black Box Co at the end of 2019 with a strong passion for adoption, commercialisation, and innovation. She identified a big issue within the beef industry and set about developing a solution. Now working with a team of 6 people and a database of over 800,000 animals Shannon has seen first hand the power of data and the insights it can unearth.

Hugh Killen

Australian Agricultural Company Ltd, CEO

Hugh Killen was appointed the Australian Agricultural Company (AACo) Managing Director and Chief Executive Officer in February 2018.

Prior to this, he held the position of Chief Commercial Officer in a consulting capacity assisting AACo's operations and finance functions.

Hugh is a highly experienced senior executive with over 25 years' experience in global financial markets and has worked in London, New York and Sydney.

Hugh has a lifelong association with agriculture having being raised on pastoral properties in northern NSW and south-west Queensland, and has retained strong personal involvement in the industry through private investments in farming.

NEXT GEN PHD RESEARCH ON THE BEEF HORIZON

Hear from the next generation of beef researchers who will discuss the value of their research for the industry. Students will deliver a 3-minute thesis style presentation and answer questions.

- **Harrison Lamb** - Crush-side genotyping to accelerate genetic gain livestock
- **Melissa Wooderson** - Achieving high standards of beef calf welfare in northern Australia
- **Muhammad Kamran** - Breeding for resistance to buffalo flies
- **Emily Mantilla** - Predicting tick resistance in cattle

Queensland Alliance for Agriculture and Food Innovation

QAAFI is an agricultural and food sciences research institute of The University of Queensland – one of the world's leading research providers in tropical and subtropical agriculture and food production.

At QAAFI, our mission is to harness high tech science for sustainable agriculture and food production. To achieve this, we use game-changing technologies like artificial intelligence (AI), nanotechnology, genomics, gene editing and big data to produce safer, more nutritious food, using less resources.

Not only is UQ number one for agricultural science in Australia and one of the most highly ranked institutions in the world in this field, it is located in tropical and subtropical environments and, therefore, well placed as a hub for digital agriculture and delivering step-change innovations for the growth and production of sustainable and nutritious food.

Through our alliance with the Queensland Government, QAAFI researchers utilise world-class research field station facilities throughout tropical and subtropical environments in Queensland.

QAAFI delivers high–impact science to significantly improve the productivity, competitiveness and sustainability of tropical and subtropical food, fibre and agribusiness industries.

High impact science for sustainable agriculture and food

QAAFI is comprised of four inter-related research centres, with a focus on the challenges facing tropical and sub-tropical food and agribusiness sectors in the tropical and subtropical systems.

- Centre for Animal Science
- Centre for Crop Science
- Centre for Horticultural Science
- Centre for Nutrition and Food Sciences

Centre for Animal Science

Leading tropical livestock research and development

The Centre for Animal Science delivers world-class research to Australia's animal industries. We aim to increase on-farm productivity and sustainability in the northern Australian beef industry and across the livestock industries, including pigs and poultry.

We have major programs and capability in genetics and genomics; breeding and reproductive capability of northern Australian cattle breeds; assessment of animal welfare; pest and disease control through improved detection; monitoring and vaccine technologies; nutrition; metabolism and growth.

Centre for Crop Science

Integrated research for cereal and legume cropping systems

The Centre for Crop Science conducts world-leading research targeting enhanced profitability and sustainability of cereal and legume cropping systems in tropical and sub-tropical environments.

We pursue excellence in crop science at molecular, whole plant, and production system levels. Our integrated research capabilities include crop genetics, physiology, and modelling, along with soil science and weed biology. We work closely with industry and government, and seek synergies to meet challenges in crop science at a national and international level.

Centre for Horticultural Science

Driving innovation and industry adoption

The Centre for Horticultural Science delivers improvements to productivity, profitability and sustainability of horticulture industries.

Our world-class researchers drive innovation and industry adoption to increase the competitiveness of Australia's horticultural industries globally. Our expertise includes; Horticulture crop breeding and agronomy, Plant protection and Emerging technologies.

Centre for Nutrition and Food Sciences

Consumer 'fork to farm' research focus

The Centre for Nutrition and Food Sciences supports enhanced health outcomes and economic benefits for Australia, by conducting integrated fundamental and applied research to improve the taste, quality, appearance, nutritional value and safety of food.

We aim to understand the fundamental characteristics of food that influence processing, food quality, consumer perception and nutritional value.

Our Rankings

UQ is #1 in Australia and #3 globally for agriculture
According to the NTU Performance Ranking of Scientific Papers for World Universities by field 2020.

UQ is ranked #1 in Australia and #26 globally for life sciences
According to the QS World University Ranking, by Subject (Agriculture & Forestry) 2021.

UQ is the #3 university in Australia for research
According to the Nature Index tables Top Academic Institutions 2020.

UQ is ranked #21 globally for Agricultural Sciences
According to the ShanghaiRanking's Global Ranking of Academic Subjects (ARWU) 2020.

UQ is ranked #20 globally and #1 in Australia for food science and technology
According to the ShanghaiRanking's Global Ranking of Academic Subjects (ARWU) 2020.

UQ ranks #21 globally for Agricultural Sciences
According to the Academic Ranking of World Universities 2020.

# Centre for Animal Science research capabilities

Animal welfare

Research to address the priority areas in animal welfare in livestock industries.

Our research includes:

- Translation of animal welfare science into informative decision tools
- Objective assessment of animal welfare
- Integrated animal welfare research across nutrition, disease and genetics
- Facilitation of cross-sectoral collaboration in continuous welfare improvement
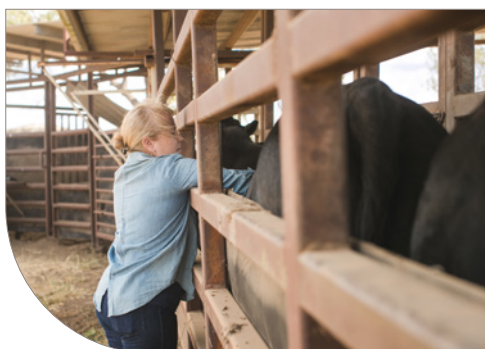
Pests and diseases

Improving productivity of systems through minimising losses due to pests and diseases.

Our research includes:

- Control of internal and external parasites
- Novel vaccines
- Infectious and emerging diseases in pigs and poultry
- Respiratory and reproductive diseases
- Pathogen genomics
- Diagnostic assay development and validation

Production systems

Research to improve productivity, profitability and sustainability of tropical and sub-tropical livestock production systems.

Our research includes:

- Ruminant nutrition and pasture nutrition
- Genetics and genomics
- Livestock production management systems
- Ruminant digestion
- Meat quality, physiology and genetics

Highlights of QAAFI's research into animal science

Genetic improvement of livestock

A massive global study involving 58,000 cattle has pinpointed the genes that influence the complex genetic trait of height in cattle, opening the door for researchers to use the same approach to map high-value traits including those important for beef and milk production. The research was undertaken by a UQ-led global 1000 Bull Consortium of 57 researchers from 30 institutes, to tackle the challenge of identifying variants in the genome affecting complex traits, due to variations within multiple genes and to behavioural and environmental factors.

qaafi.uq.edu.au/genomics-genetics

The Animal Welfare Collaborative

The Animal Welfare Collaborative (TAWC) is a university-facilitated network for stakeholders from industry, government, academia, and the community to engage constructively and support each other in ways to improve animal welfare. TAWC is funded by UQ, administered by researchers across Australian universities, and powered by the ideas and enthusiasm of people across society.

Find out more and get involved at theanimalwelfarecollaborative.org

Contacts

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