

The Queensland Alliance for Agriculture and Food Innovation

CENTRE FOR ANIMAL SCIENCE



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 subtropical 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 #21 globally for Agricultural Sciences

According to the ShanghaiRanking’s Global Ranking of Academic Subjects (ARWU) 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 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 is the #3 university in Australia for research

According to the Nature Index tables Top Academic Institutions 2020.



UQ ranks #21 globally for Agricultural Sciences

According to the Academic Ranking of World Universities 2020.

Our research capabilities in animal science



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



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