

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 fewer 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

The Centre for Animal Science delivers world-class research to support and transform Australia's livestock industries. We aim to enhance productivity, profitability, and sustainability across the livestock sector, with particular expertise in northern Australia's beef industry, the feedlot sector and strong programs in poultry and pork.

We combine expertise in genetics and genomics, reproductive performance, animal health and welfare, biosecurity and vaccine development, and nutrition and growth, distinguished by an integrated systems approach that links animal biology, environment, and management to deliver solutions for tropical and subtropical livestock production.

Centre for Crop Science

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

The Centre for Horticultural Science delivers improvements to productivity, profitability and sustainability of horticulture industries. Our researchers drive innovation and industry adoption to increase the competitiveness of Australia's horticultural industries.

Our expertise includes; horticulture crop breeding, agronomy, plant protection, biosecurity and diagnostics, plant propagation, orchard design and productivity improvements in existing orchards.

Centre for Nutrition and Food Sciences

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, and translate insights into added-value ingredients, new products and new opportunities for growers and food manufacturers.

Our Rankings



UQ is ranked #1 in Australia and #6 globally for agriculture

According to the NTU Performance Ranking of Scientific Papers for World Universities 2025.



UQ is ranked #1 in Australia and #15 globally for environmental sciences

According to the QS World University Rankings by Subject 2025.



UQ is ranked #1 in Australia and #15 globally for agriculture and forestry

According to the QS World University Rankings by Subject 2025.



UQ is ranked #1 in Australia and #17 globally for food science and technology

According to the 2024 Shanghai Ranking's Global Ranking of Academic Subjects.

Our research capabilities in animal science



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
- 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



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

Highlights of QAAFI's research into animal science

Data-driven decisions for northern beef production

QAAFI delivers research that enhances the productivity, profitability, and resilience of Australia's livestock industries. The Calf Alive project exemplifies this impact, combining nutrition, physiology, genetics, and economic modelling to improve reproductive efficiency and herd performance in northern beef systems. The project is also pioneering the use of nitrogen isotopes in tail hair to identify more efficient breeders, linking cutting-edge science with practical management to help producers build flexible and productive herds under variable northern conditions.



Chicken Nutrition, Gut Health and Environment


The Sustainable Precision Feeding in Broiler Chickens project is a world-first collaboration led by UQ and funded by AgriFutures Australia. It brings together global experts to improve chicken meat production through advanced nutrition, gut health, and sustainability. The project supports industry capacity through training, international collaboration, and research focused on reducing reliance on soybean and antibiotics while improving welfare and environmental outcomes.



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