

The Queensland Alliance for Agriculture and Food Innovation

CENTRE FOR NUTRITION AND FOOD SCIENCES



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 food and nutrition sciences

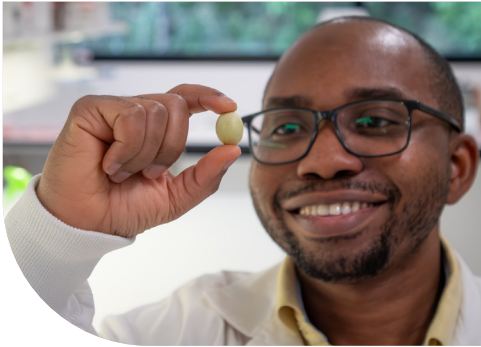


Uniquely Australian

Identifying and validating opportunities for elite products from foods and ingredients that can only have come from Australia

Our research includes:

- Provenance (region of origin) and regional attributes
- Functional food/feed/nutraceutical ingredients with enhanced nutritional and phytochemical profiles from specialty crops (Australian native plant foods) and industry co/by-products
- Value chain value-addition through processing and preservation
- Sensory properties, linked to consumer marketing and branding
- Innovative packaging solutions and safe use of novel plant foods



Smart selections

How to identify the right combinations of raw materials and processing to deliver consumer-preferred foods

Our research includes:

- Determining the molecular basis for the sensory and nutritional properties of foods, as influenced by raw materials and post-harvest processing
- Analysing the compositional structure of food attributes desired by consumers
- Matching animal genotypes and meat processing for quality meat products
- Post-harvest quality of cereals, in relation to domestic and export market requirements
- High through-put technologies such as near infrared for testing raw material and finished food quality



Nutritious food

Maximising the intrinsic nutritional properties of agricultural products in foods and ingredients

Our research includes:

- Biofortification: screening germplasm, bioprospecting and plant breeding for nutrition-enhanced products
- Linking nutritional and sensory properties through chemosensing mechanisms
- Bioaccessibility and bioavailability of phytonutrients to humans; impact of phytonutrient consumption on health markers
- Maintenance of phytonutrients: identification of nutritional value decline in the supply chain, and means of preserving nutritional content to point of consumption
- Phytonutrient analysis, sensory and consumer science

Highlights of QAAFI's research into food and nutrition sciences

Value-adding for premium Australian food brands and markets

Australian native plants are packed with unique and complex phytonutrients that allow the plant to survive in some of the world's harshest environments. The Uniquely Australian Foods team are working with indigenous industry and communities to research the nutritional characteristics of these foods – and investigate the provenance of foods grown in Australia to transform the native Food and Agribusiness Sector.

uniquelyaustralianfoods.org



Researchers to take healthy oats beyond breakfast


Expanding consumption of oats beyond the usual breakfast bowl of porridge is the aim of a \$5.6 million project at the Food and Beverage Accelerator. It's FaBA's largest research project since its establishment at The University of Queensland and involves the My PlantCo's Real Oats brand which is working to commercialise products including oat rice, noodles and pasta.



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