

# 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. We support a 'fork to farm' consumer and nutritional focus to influence production choices across the agricultural industries. We partner with a range of food and agricultural industries and offer expertise in:

- Food quality and human nutrition
- Sensory and consumer science
- Molecular basis for food quality
- Food bio-materials and processing
- Molecular parasitology
- Host/pathogen interactions using genomics and biotechnology
- Biofortification of fruit, nuts and vegetables

## RESEARCH THEMES:

### Smart selections

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

- Determining the molecular basis for the sensory and nutritional properties of foods, from raw materials and post-harvest processing
- Analysing the compositional structure of particular food attributes desired by consumers
- Matching animal genotypes and meat processing for quality beef 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

### Naturally nutritious

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

- Biofortification: screening germplasm and exploratory bioprospecting for nutrition-enhanced products
- Plant breeding to create nutrient-dense fruit, vegetables and nuts
- 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
- Evaluation of consumer interest and format of new nutrition-enhanced products



### Centre Director

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### Uniquely Australian

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

- 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

## OUR RESEARCH LEADERS:

**Dr Glen Fox:** cereal quality and non-destructive, high throughput analysis

**Prof Mike Gidley:** plant-based foods and nutrition

**Prof Bob Gilbert:** starch/glycogen: structure/function/biosynthesis

**Dr Michael Netzel:** phytochemicals

**Dr Tim O'Hare:** biofortified crops  
**A/Prof Eugeni Roura:** nutritional chemosensing

**Dr Heather Smyth:** flavour, sensory and consumer science

**A/Prof Yasmina Sultanbawa:** preservation technology, food safety, native foods

# The Queensland Alliance for Agriculture and Food Innovation

High impact science for sustainable agriculture and food

QAAFI is a research institute of the University of Queensland (UQ), supported by the Queensland Government. As one of the few research-intensive universities worldwide located in a subtropical environment, UQ is a global leader in agriculture and food science research in subtropical and tropical production systems. Agriculture-related research at UQ is consistently ranked among the best in the world.

QAAFI's vision is to improve the productivity, competitiveness and sustainability of tropical and subtropical food, fibre and agri-business industries.



#1

UQ is #1 Agricultural research institute in Australia\*



#5

Global agricultural research institute\*



#1

Agricultural patents lodged in Australia UQ\*\*



30+

Countries collaborating in research



13

Facilities across Queensland



14

Research themes

\*(NTU rankings 2017)  
\*\*(Thomas Reuters 2015)



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## Our Research Centres



The Queensland Alliance for Agriculture and Food Innovation (QAAFI) is a research Institute of the University of Queensland, supported by the Queensland Government.