



# Australasian Grain Science Association

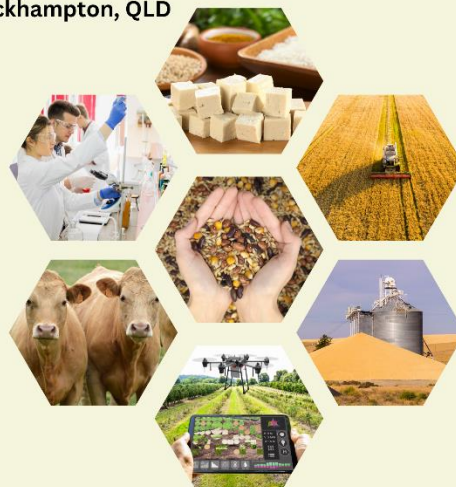
73rd Annual Conference | 26-29 September 2023 | Rockhampton, QLD

## Grain Crops and Sustainable **FOOD SYSTEMS**

conference@ausgrainscience.org.au

www.ausgrainscience.org.au

#AGSA23



## CONFERENCE PROGRAM

### Day 1 – Tuesday 26<sup>th</sup> September

*CQIRP, room G.01*

#### **Preconference postgraduate workshop**

**Chair: Dr Mani Naiker**

**12:00** Registration and light lunch

**12:30** **Prof Susan Kinnear**

*Dean, School of Graduate Research (CQUniversity)*

Making the most of it: how to get full value from a PhD

**1:00** **Mr Michael Thomson**

*Communications & Stakeholder Engagement Manager (CQUniversity)*

Fundamentals of scientific research extension strategy

**1:45** **Prof Mark Trotter and Dr Anand Koirala**

*CQUniversity*

Innovations in agricultural production systems: monitoring of on-farm livestock productivity & automated mango harvester

**2:30** **Dr Sushil Dhital and Prof Les Copeland**

*Monash University and University of Sydney*

Scientific writing skills

**3:15** **Bus Tour**

CQU research facilities and local farming communities

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**6:00-7:00** Student social mixer and drinks (*CQIRP, rooms G.01 and G.02*)

**AGSA Council events**

**5:00** Meeting (*CQIRP*)

**6:30** Chairman's dinner (*Parkhurst Tavern*)

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## Day 2 – Wednesday 27<sup>th</sup> September

*CQIRP, rooms G.01 and G.02*

**Conference opening**

**8:00** Registration

**8:30** Welcome: **Dr Mani Naiker**  
*Conference Chair (CQUniversity)*

**8:40** Welcome Address and Acknowledgement of Country: **Ms Narelle Pearse**  
*Chief Operating Officer, Corporate Services (CQUniversity)*

**9:00** Address: **Cr Drew Wickerson**  
*(Rockhampton Regional Council)*

**9:10** Address: **Dr Graeme Sandral**  
*Grower Relations Manager, North*  
*(Grain Research Development Corporation)*

**Plenary presentation**

**Chair: Dr Sushil Dhital**

**9:30** **Dr Greg Rebetzke**  
*Chief Research Scientist at CSIRO Agriculture and Food*  
Breeding 'systems resilience' and not 'crop resistance' for reliable crop production in future climates

**F B Guthrie Grain Science Medal**

**Chair: Dr Sushil Dhital**

**10:05** Guthrie Medal presentation

**10.15** Guthrie Address

**10:45** Morning tea (sponsored by GRDC)

**Climate and grain production**

**Chair: Prof Chris Blanchard**

**11:30** **Dr Ian Biggs**  
*CRC for Developing Northern Australia*  
Developing a grains industry in northern Australia, the research and development impact of funding from the CRC for developing northern Australia

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<b>12:00</b>	<b>Dr Claudia Keitel</b> <i>University of Sydney</i> Heat alters the accumulation and reallocation of water-soluble carbohydrates in wheat stems during grain-filling
<b>12:15</b>	<b>Dr Mani Naiker</b> <i>CQUniversity</i> Evaluation of the impact of elevated CO <sub>2</sub> on physiochemical parameters in peanut ( <i>Arachis hypogaea</i> L.) genotypes
<b>12:30</b>	<b>Mr Muhammad Yahya</b> <i>University of Queensland</i> Identifying wheat genotypes that retain grain quality under post-flowering heat stress
<b>12:45</b>	<b>Mr Md Rahmatuzzaman Rana</b> <i>Charles Sturt University</i> Impact of legume crop-rotation on wheat protein composition and dough rheology
<b>1:00</b>	Lunch <b>Poster session</b>
	<b>Starch, dietary fibre – structure, metabolic health</b> <b>Chair: Dr Mahsa Majzoubi</b>
<b>1:45</b>	<b>Prof Yong-Cheng Shi</b> <i>Kansas State University</i> Unveiling the potentials of starch: exploring innovative starch-based ingredients and structure-digestibility relationship
<b>2:15</b>	<b>Prof Bin Zhang</b> <i>South China University of Technology</i> The strategies to modulate colonic fermentation rate and metabolite profiles of resistant starches
<b>2:30</b>	<b>Dr Amy Lin</b> <i>Singapore Institute of Food and Biotechnology, A*STAR</i> Slow the starch digestibility of cooked potato by manipulating starch susceptibility to $\alpha$ -amylase and mucosal $\alpha$ -glucosidase differently
<b>2:45</b>	<b>Mr Shaobo Zhang</b> <i>University of Queensland</i> Development of granule-bound starch synthase I activity model using free energy calculations
<b>3:00</b>	<b>Dr Jihui Zhu</b> <i>University of Queensland</i> Using starch structure to choose rices with an optimal combination of palatability and digestibility

<b>3:15</b>	Afternoon tea
	<b>Grains and plant-based protein</b> <b>Chair: Dr Vito Butardo Jr</b>
<b>3:45</b>	<b>Dr Regine Stockmann</b> <i>CSIRO Agriculture and Food</i> Opportunities and challenges for pulse proteins in the booming protein market
<b>4:15</b>	<b>Dr Sushil Dhital</b> <i>Monash University</i> Processing induced structural changes in plant proteins
<b>4:30</b>	<b>Dr Lavaraj Devkota</b> <i>Monash University</i> Structural and functional characterization of lupin protein isolates from two Australian lupin varieties
<b>4:45</b>	<b>Mr Damodar Dhakal</b> <i>Monash University</i> The effect of probiotic strains on the proteolytic activity and peptide profiles of lupin oat-based yoghurt
<b>5:00 – 8:30</b>	<b>Poster session</b> Including welcome reception, social mixer, and drinks <i>CQIRP, marquee on front lawn</i>
<b>8:30</b>	Day 2 close

## Day 3 – Thursday 28<sup>th</sup> September

*CQIRP, rooms G.01 and G.02*

	<b>Grains, bioactives and human nutrition</b> <b>Chair: Prof Mike Gidley</b>
<b>8:30</b>	<b>Prof Stefan Kasapis</b> <i>RMIT University</i> Aspects of techno- and bio-functionality in insoluble dietary-fibre enriched liquid breakfast
<b>9:00</b>	<b>Prof Les Copeland</b> <i>University of Sydney</i> In vitro models for predicting glycemic effects of starch
<b>9:15</b>	<b>Mr Joel Johnson</b> <i>University of Queensland</i> Partitioning of polyphenols from dry fractionation of Australian pulses

<b>9:30</b>	<b>Mr Borkwei Ed Nignpense</b> <i>Charles Sturt University</i> Changes to the phenolic composition and antioxidant activity of pigmented cereal grain extracts following simulated in vitro digestion and Caco-2 cellular transport
<b>9:45</b>	<b>Mr Raymond Jim Wei Siong</b> <i>Swinburne University of Technology</i> Maximizing nutritional potential and exploring zero-waste processing of Australian oilseeds
<b>10:00</b>	<b>Morning Tea</b>
	<b>Sensors and novel technologies</b> <b>Chair: Dr Jennifer Dang</b>
<b>10:45</b>	<b>Prof Graeme Batten</b> <i>University of Sydney</i> Phosphorus: food security depends on it
<b>11:15</b>	<b>Prof Rui Liu</b> <i>Institute of Food and Nutrition Development, Ministry of Agriculture and Rural Affairs, China</i> Preparation, evaluation, and specific wheat flour of hand-pulled alkaline noodles (la-mian)
<b>11:30</b>	<b>Dr Mahsa Majzoobi</b> <i>RMIT University</i> Starch modification to meet food megatrends
<b>11:45</b>	<b>Prof Glen Fox</b> <i>University of California, USA</i> Who put the 'omics in my beer?
<b>12:00</b>	Lunch <b>Poster session</b>
	<b>Grain and graze</b> <b>Chair: Dr Tienieke Trotter</b>
<b>1:30</b>	<b>Prof Flávio Augusto Santos</b> <i>University of São Paulo, Brazil</i> Beef cattle production in Brazil - grain and graze
<b>2:00</b>	<b>Dr Bernadine Flanagan</b> <i>University of Queensland</i> The effect of exogenous enzyme supplementation on digestibility and fermentability of sorghum-based diets for weaning piglets
<b>2:15</b>	<b>Mrs Pasmitta Neupane</b> <i>CQUniversity</i> Evaluation of grain and graze traits in cowpea genotypes

<b>2:30</b>	<b>Mr Ryan Batley</b> <i>CQUniversity</i> Phenolic compounds and in vitro ruminant fodder metrics derived from Australian adzuki bean vegetative matter
<b>2:45</b>	<b>Cereals &amp; Grains (AACC) Panel Discussion</b> Growing the Business of Whole Grain! <b>Panelists:</b> Dr Sara Grafenauer (University of New South Wales) & Ms Devika Srinivasan (Mauri, NSW) <b>Panel Moderator:</b> Prof Les Copeland (University of Sydney)
<b>3:45</b>	Afternoon tea
<b>AGSA Annual general meeting</b>	
<b>4:00-5:00</b>	AGM – All welcome to attend
<b>6:00-9:00</b>	<b>Conference Dinner and Entertainment</b> (Headricks Lane, Rockhampton) Presentation of the AGSA Service Award (sponsored by FiberCarb) Presentation of AGSA Student Travel Awards (sponsored by GRDC)

## Day 4 – Friday 29<sup>th</sup> September

*CQIRP, rooms G.01 and G.02*

<b>New and emerging grain crops</b> <b>Chair: Prof Les Copeland</b>	
<b>8:30</b>	<b>Prof Mike Gidley</b> <i>University of Queensland</i> Drivers for new and emerging grain crops in foods
<b>9:00</b>	<b>Dr Frank Békés</b> <i>FBFD PTY LTD, Australia</i> Healthy sourdough bread made from a spelt wheat with low FODMAP content
<b>9:15</b>	<b>Dr Tienieke Trotter</b> <i>CQUniversity</i> Northern Australian cropping industries, new and emerging opportunities
<b>9:30</b>	<b>Ms Janice Mani</b> <i>CQUniversity</i> Observations on vitexin and isovitexin in Australian mungbean seed
<b>9:45</b>	Morning tea

**Grain waste valorisation**  
**Chair: Dr Bernadine Flanagan**

**10:30** **Dr Paul Luckman**  
*Manildra Group*  
Seeding sustainability: bioprocessing hubs and grain valorization for future food systems

**11:00** **Dr Vito Butardo Jr**  
*Swinburne University of Technology*  
The utilisation of grain waste and by-products for sustainable production of bacterial cellulose

**11:15** **Ms Ruoxin Liu**  
*University of Queensland*  
Properties of legume protein-deficient fractions after dry and wet fractionation

**11:30** **Ms Ting He**  
*Monash University*  
Effects of longan seed polyphenols-maize starch complexes on starch digestion and in vitro fermentation outcomes

**11:45** **Prof Farhan Saeed**  
*Government College University Faisalabad, Pakistan*  
Biochemical & structural portrayal of ferulated arabinoxylan extracted from nixtamalized maize bran and nejayote

**12:00** Lunch

**Rapid oral**  
**Chair: Mr Joel Johnson**

**12:30** **Mr Roshan Subedi**  
*CQUniversity*  
High Nighttime Temperature (HNNT) stress in chickpea: a review of adaptive tolerance

**12:40** **Dr Ali Khoddami**  
*University of Sydney*  
Variation in yield, protein and protein composition of wheat genotypes grown under diverse environments

**12:50** **Dr Drew Portman**  
*CQUniversity*  
Grain and graze north: dual purpose peanuts for northern Australia

**1:00** **Ms Bin Jia**  
*Monash University*

	Degradation of starch in pasta induced by extrusion below gelatinization temperature
<b>1:10</b>	<b>Mr Dang Truong Le</b> <i>Monash University</i> Comparison of $\alpha$ -amylase inhibition activity of differently structured polyphenols in legume: a multi-spectroscopic and in silico study
<b>1:20</b>	<b>Dr Muhammad Arshad</b> <i>Government College University Faisalabad, Pakistan</i> Development of low-fat beef patties by using Agave Inulin and Chicory Root as a source of dietary fiber
<b>1:30</b>	<b>Mr Gaurav Kumar</b> <i>Monash University</i> Synergistic Interplay between rectified diffusion and a rise in temperature during ultrasound assisted hydration
<b>Presentations and announcements</b>	
<b>1:40</b>	Best student oral, scientific poster and technical poster (sponsored by GRDC) 2024 Conference details
<b>2:15</b>	Afternoon tea (sponsored by GRDC)
<b>3:00</b>	<b>Conference close</b>