



GRAINS

A Global Food Resource

69th Australasian Grain Science Conference

Rydges on Swanston
Carlton, Melbourne, VIC
27-29 August 2019

#AGSA19

PROGRAM

Rydges on Swanston, Level 4, Skyroom Room

Tuesday 27th of August

8:30 Conference opening: Dr Joe Panozzo and Prof Chris Blanchard

Exploiting the value of Grains

Chair: Prof Rudi Appels

8:40 Denise Hamblin

Is the future Green? Consumer insights and opportunities in Australia and export markets

9:00 Narelle Moore

Introduction of GRDC Key Investment Targets relevant to grain quality research

9:20 Sara Grafenauer

Why the future needs to be whole grain

9:40 Nese Sreenivasulu

Rice grain quality- its emerging impact to transform rice value chain

9:55 Colin Wrigley

Addressing global wheat issues one grain at a time, based on gliadin alleles

10:10 Marcus Newberry

Elucidating the genetics of wheat quality using MAGIC populations

10:25 Morning Tea

Wheat Industry Session

Chair: Mr Philip Downie

10:50 Tremayne Watts

Australia in the Mid-East/Africa and Pacific export wheat markets

11:10 Larisa Cato

	Asian market drivers
11:30	Haydn Kuchel Optimising the value of Australia's wheat
11:50	Robert Williams GRDC & Artesian delivering innovation for the Australian grains industry
12:10	James Maxwell Australian wheat supply and demand: Export challenges and opportunities
12:30	Panel Discussion
12:45	Lunch

Grains Science and Innovations		Chair: Dr Crispin Howitt
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1:30	Matt Hayden Enabling technologies for maintaining and improving grain quality
1:50	Jesse Beasley Iron and zinc biofortification of bread wheat through increased nicotianamine biosynthesis
2:05	Guillermo Garcia Gimenez Functional study of putative (1,3;1,4)- β -glucan synthases in barley grain using gene editing technology
2:20	Xiaoba Wu Nutrient dense rice with thick aleurone
2:35	Rohan Shah Metabolic contribution to salinity stress response in two barley cultivars with contrasting salt tolerance
2:50	Afternoon Tea

Structure and Functionality - Part 1		Chair: Dr Cassandra Walker
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3:15	Michelle Toutounji Rice digestibility as influenced by fertiliser application and post-harvest storage temperature
3:30	Vito Butardo The effect of down-regulating the expression of Starch Synthase IIa in <i>japonica</i> rice endosperm
3:45	Rachael Wood Vegetative water stress improves milling quality and alters the pasting parameters of rice

Rapid Fire Session		Chair: Dr Cassandra Walker
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4:00	3 Minute Poster Paper Presentations Zaynab Derakhshani Effect of salt stress on biosynthetic pathways of nutraceuticals in barley grains
	Nidhish Francis

Impact of black sorghum derived phenolic rich extracts on antioxidant and anti-inflammatory gene expression in vascular endothelial cells

Nancy Saji

Antioxidant and anti-inflammatory potential of rice bran derived phenolic compounds in human umbilical vein endothelial cells

Maria Stephanie

Effect of structural integrity on in vitro digestibility of sorghum-based pasta vs whole durum wheat pasta

Haiteng Li

A general approach to fitting digestion kinetics of starch in food

Alexander Bui

In vitro fermentation of high-amylose wheat (HAW) starches have similar gas kinetics, end-products and microbial community shifts along with identification of four amylolytic enzymes

Keyu Tao

High-amylose rice: starch molecular structural features controlling cooked rice texture and preference

Ronald Yu

Comprehensive nutritional profiling of rice mutants with thick aleurone phenotype

Qura tul Ain Riaz

Protein content and baking quality of Australian wheat - a comparison of old and modern varieties

Yingting Zhao

Comparing starch fine molecular structure to identify optimal methods of extracting starch from rice

Jennifer Dang

Assessing sprout damage using rapid Falling Number tests

Larisa Cato

Development of an objective method to measure texture of YAN

Philip Kerr

Australian sweet lupins: a source of nutrition and medicinal benefits

Rydges on Swanston, Level 4, Pool Deck Terrace

5.15-7.00 Welcome Mixer and Poster Session, sponsored by Megazyme

Wednesday 28th of August

8:30

Student awards, announcements

Prof Chris Blanchard and Dr Lindsay O'Brien

Processing Technologies leading to Innovative Products

Chair: Prof Chris Blanchard

8:40

Carl Dolgow

The influence of proteins and pre-treatment in high moisture extrusion

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- 9:00** **Danyang Ying**
Extrusion processing of cereals
-
- 9:20** **Asgar Farahnaky**
Pulse extrusion: Challenges and opportunities for food innovation
-
- 9:35** **Andrew Portman**
Capturing the potential value of low-grade lentil seeds as a flour additive in extruded products
-
- 9:50** **Stephen Cork**
Processing effects on pulse flake quality
-
- 10:05** **Larisa Cato**
Bread dough rheology and its relationship to end-product quality
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- 10:20** **Morning Tea**

Nutrition/Health Benefits

Chair: Dr Mike Gidley

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- 10:40** **Regina Belski**
What the cavemen were missing: unpacking the nutritional benefits of grains and pulses
-
- 11:00** **Mike Sissons**
Impact of amylose variation in Svevo durum wheat on technological properties, starch digestion and glycaemic index
-
- 11:15** **Esther Callcott**
The acute anti-inflammatory and antioxidant effects of coloured rice-derived polyphenols in obese populations
-
- 11:30** **Barry McCleary**
Recognition, definition and measurement of resistant starch
-
- 11:45** **Dai Suter**
Why do so many consumers purchase "gluten free" breads?
-
- 12:00** **Wei Zou**
Pasta starch digestion slowed by endogenous thermostable proteinaceous α -amylase inhibitors
-
- 12:15** **Haleh Harati**
Modification of wheat dough structure
-
- 12:30** **Lunch**

Rydges on Swanston, Level 4, Vista Auditorium

Structure and Functionality Part 2 – Concurrent

Chair: Dr Sushil Dhital

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- 1:25** **Mike Gidley**
Structure-function-nutrition relationships in grain starch: pre- and post-harvest opportunities
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- 1:45** **Sushil Dhital**
Interactions of starch with non-starch components at molecular and cellular levels affect the properties and enzyme susceptibility
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2:05	Siong Tan Effects of protease and nutrient supplementation on fermentation rate of Australian sorghum varieties
2:20	Nabeel Alzuwaid Influence of wheat bran particle size and level of addition on durum spaghetti
2:35	Caili Li High-amylose wheat food as a relatively novel source of dietary fibre
2:50	Joel Johnson ATR-MIR: A valuable tool for the rapid assessment of biochemically active compounds in grains
3:05	Afternoon Tea

Rydges on Swanston, Level 4, Horizon Auditorium

Structure and Functionality Part 3 – Concurrent

Chair: Dr Daniel Waters

1:25	Mahsa Majzoobi Effects of novel food processes on physicochemical properties of some native and modified starches
1:40	Shiwangni Rao Response of phenolic compounds present in barley and oat to variation in location
1:55	Gururaj Kadkol Progress in breeding durum for New South Wales
2:10	Chris Florides Investigation of immunogenicity in a wheat line and its null derivatives for different gliadin loci.
2:25	Hayfa Salman Whole grain wheat authenticity
2:40	Bob Gilbert New methodology for selecting grains for improved properties
3:00	Afternoon Tea

3.30-5.00 AGSA 2019 Annual General Meeting

Rydges on Swanston, Ground Floor, Orbit Room

6.30 Pre-Dinner Drinks

7.00-10.30 Conference Dinner

Thursday 29th of August

Sustainable Futures, Feeding the World with Quality Grain

Chair: Dr Vito Butardo

8:30	Bond Award presentation Presented by Prof Chris Blanchard
9:10	Thomas Vanhercke Designer plant oils through metabolic engineering
9:30	Fawad Ali Grain filling temperature stress reduces head rice yield through husk enlargement in a long grain cultivar and grain breakage in medium grain cultivars
9:45	Daniel Cozzolino From genes to climate change - the role of rapid analytical methods in sustainable grain production in Australia
10:00	Morning Tea
Advances in Precision Agriculture and Big Data for Grain Quality Management: Cereals & Grains Assn (AACC) – ILSI SEAR Australasia Chair: Anne Bridges Moderator: Prof. Les Copeland	
10:30	Phillip Clancy Finding the sweet spot in nitrogen fertilization by measuring protein with an on combine NIR analyser
10:55	Surya Kant Modern trends in digital plant phenotyping for grain research
11:20	Richard Williams Using big data to predict wheat quality – the value of, the next steps?
11:45	Ross Kingwell The economics of the quality of wheat for South East Asia
12:10	Panel Discussion - Moderator: Les Copeland
12:30	Conference Close - Joe Panozzo and Chris Blanchard Announcement AGSA 2020 conference
12.45	Lunch

Poster Presentations

Mathilde Berra

Impact of the wheat tempering procedure on the grain behaviour during milling and on the flour quality: effect of tempering time

Mathilde Berra

Impact of the wheat tempering procedure on the grain behaviour during milling on the flour quality: effect of final tempering moisture content

Mathilde Berra

Rheological characterization of nixtamalized corn dough

Mathilde Berra

Selection and evaluation of rice flours for gluten-free cookies

Heidi Bochenek

The anti-cancer effects of various chickpea extracts

Utpal Bose

Cereal grain proteome profiling to assess the effect of hordein suppression in single-null barley lines

Alexander Bui *Rapid Fire Presentation

In vitro fermentation of high-amylose wheat (HAW) starches have similar gas kinetics, end-products and microbial community shifts along with identification of four amylolytic enzymes

Larisa Cato

Evaluation of AmyLab to assess alpha amylase activity in wheat

Larisa Cato

MixoLab as a tool to evaluate noodle quality

Larisa Cato *Rapid Fire Presentation

Development of an objective method to measure texture of YAN

Allister Clarke

Rapid analysis of rice grain quality

Claudio Cornaggia

Chemoenzymatic synthesis of novel substrates for the facile measurement of glucuronoyl esterase

Jennifer Dang *Rapid Fire Presentation

Assessing sprout damage using rapid Falling Number tests

Zaynab Derakhshani *Rapid Fire Presentation

Effect of salt stress on biosynthetic pathways of nutraceuticals in barley grains

Borkwei Ed Nignpense

Evaluating the antiplatelet effect of polyphenol-rich black sorghum extracts

Mahsa Majzoobi

Production of special purpose starches using dry technology

Haelee Fenton

Noodles made from high amylose wheat flour attenuate postprandial glycaemia in healthy adults

Nidhish Francis *Rapid Fire Presentation

Impact of black sorghum derived phenolic rich extracts on antioxidant and anti-inflammatory gene expression in vascular endothelial cells

Crispin Howitt

Kebari® barley: moving beyond beer

Gideon Kang

Impact of coloured-rice derived phenolic extracts in modulating gene expression associated with β -cell dysfunction in type 2 diabetes mellitus

Kamaljit Kaur

Effects of oat variety on the physicochemical and sensory properties of quick oats

Philip Kerr *Rapid Fire Presentation

Australian lupins - potential nutraceutical

Haiteng Li *Rapid Fire Presentation

A general approach to fitting digestion kinetics of starch in food

Xin Liu

Starch molecular structural difference between chalk and translucent rice and effects on functional properties

Jixun Luo

Introducing indica type SSIa allele into down-regulated SBEIIb *japonica* rice partially recovers the altered starch structure and properties without changing its high amylose content

Mahsa Majzoobi

Effect of microwave processing on physicochemical properties of annealed oat starch

Barry McCleary

An improved method to determine phytic acid content of cereals and foodstuffs

Hanben Melke

Anti-cancer properties of Lupin peptide hydrolysate

Jack Murphy

The impact of phytolin and lupin flour on the *in vitro* digestion of waxy rice

Thoa Nguyen

The role of starch structure in eating quality of oat-fortified wheat noodles

Prakash Oli

Effect of nitrogen fertiliser use on the quality of stored rice

Maryam Paykary

Formulation of specialised breads with functional additives using a Taguchi design

Mohammad Raiyan Mahbub

Impact of hemp seed protein hydrolysate on platelet activation

Qura tul Ain Riaz *Rapid Fire Presentation

Protein content and baking quality of Australian wheat - a comparison of old and modern varieties

Nancy Saji *Rapid Fire Presentation

Antioxidant and anti-inflammatory potential of rice bran derived phenolic compounds in human umbilical vein endothelial cells

Chandra Sharat

Effects of pectins on *in vitro* digestibility of cooked starches

Maria Stephanie *Rapid Fire Presentation

Effect of structural integrity on *in vitro* digestibility of sorghum-based pasta vs whole durum wheat pasta

Xiaoyan Tan

Optimizing an extraction method for characterizing chickpea-starch molecular fine structure

Keyu Tao *Rapid Fire Presentation

High-amylose rice: starch molecular structural features controlling cooked rice texture and preference

Rachael Wood

Effect of plant density on grain quality parameters of short and medium grain rice varieties

Ronald Yu *Rapid Fire Presentation

Comprehensive nutritional profiling of rice mutants with thick aleurone phenotype.

Yingting Zhao *Rapid Fire Presentation

Comparing starch fine molecular structure to identify optimal methods of extracting starch from rice
