





Program

Sunday 19 November 2017

18:00 – 20:30 The Charming Squire 3/133 Grey St South Brisbane	RAID Early and Mid-Career Researcher Speed Networking Event	Supported by 
18:15 – 20:30 Plaza Auditorium	Food Evolution movie Hosted by Alison Van Eenennaam	Supported by 

Monday 20 November 2017

07:00 – 20:00 Plaza Auditorium foyer	Registration desk open	
08:15 – 08:45 Plaza Auditorium	Conference opening Robert Henry, Director of the Queensland Alliance for Agriculture and Food Innovation (QAAFI), Chair, TropAg2017 International Advisory Committee Beth Woods, Director-General, Department of Agriculture and Fisheries, Queensland Government	
08:45 – 09:20 Plaza Auditorium	Keynote presentation Chair: Astrid Hughes, Hort Innovation, Australia Closing the tropical land frontier: The roles of globalization and intensification – 100 Derek Byerlee, Georgetown University, USA	
09:20 – 09:55	Keynote presentation Chair: Yasmina Sultanbawa, The University of Queensland, Australia Biodiversity and food and nutrition security: Drivers of food choices for dietary diversification for improved health and nutrition for vulnerable populations – 101 Judith Kimiywe, Kenyatta University, Kenya	
09:55 – 10:25	Morning tea	Supported by 
10:30 – 12:30	Concurrent symposium session 1	
1.1 Meeting room P11 Photosynthesis in the field: Phenomics, genomics, and modelling Supported by 	Chair: Bob Furbank, The Australian National University, Australia Photons to food; Improving photosynthesis and yield potential in C3 and C4 crops – 102 Bob Furbank, The Australian National University, Australia Hyperspectral phenotyping for photosynthetic variation in wheat Tony Condon, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia Field phenotyping for photosynthetic traits in sorghum – 104 Barbara George-Jaeggli, The University of Queensland, Australia Modelling likely field impacts of modifying photosynthesis – 105 Alex Wu, The University of Queensland, Australia Building climate resilience in agricultural crops by manipulating CO₂ fixation – 106 Robert Sharwood, Australian National University, Australia	
1.2 Meeting room P10 Ensuring the health and growth of horticulture	Chair: André Drenth, The University of Queensland, Australia Horticulture - the vital industry – 107 David Moore, Hort Innovation, Australia Impact of genomics on plant protection in bananas – 108 Gert Kema, Wageningen University and Research, The Netherlands Developing a professional vegetable supply chain in South East Asia – 109 Arie Baelde, Rijk Zwaan, Australia Impacts of plant breeding on the Australian mandarin industry – 110 Malcolm Smith, Department of Agriculture and Fisheries, Queensland Government, Australia Reducing the impact of diseases on productivity and quality of avocado – 111 Elizabeth Dann, The University of Queensland, Australia Prospects for genetic improvement of macadamia – 112 Bruce Topp, The University of Queensland, Australia	

1.3

Meeting room P7

Harnessing advances in livestock science to deliver sustainable development goals

Chairs: Lindsay Falvey, University of Melbourne, Australia and Jimmy Smith, International Livestock Research Institute, Kenya

Sustainable livestock - integrated approaches for multiple benefits – 113

Henning Steinfeld, Food and Agriculture Organization of the United Nations, Italy (in absentia)

Key pathways for the livestock sector, sustainable intensification and mitigating vulnerability – 114

Thomas Randolph, International Livestock Research Institute, Kenya

Delivering livestock science solutions for development outcomes through two distinct approaches: Philanthropy and shared value – 115

Jessica Ramsden, Elanco Animal Health, Australia

New livestock genetics and genomics solutions and applications in the tropics – 116

Steve Kemp, International Livestock Research Institute, Kenya

Animal and human health: A dangerous intersection or healthy future? – 117

Delia Grace, International Livestock Research Institute, Kenya

Optimizing the environmental footprint of livestock production – 118

An Notenbaert, International Center for Tropical Agriculture (CIAT), Kenya

1.4

Meeting room P8

Harnessing Indigenous foods for diet diversification

Chairs: Ann Shanley, Kindred Spirits Foundation, Australia and Bob Landon, Queensland Alliance for Agriculture and Food Innovation (QAAFI), Australia

Improving food and nutrition security through dietary diversification: Promoting the rich Kenyan cuisine – 119

Judith Kimiywe, Kenyatta University, Kenya

Selection of suitable Kei-apple lines based on phytochemical content for functional product development – 120

Dharini Sivakumar, Tshwane University of Technology, South Africa

Value added nutritionally rich products from wattle seed (*Acacia sp.*) – 121

Yasmina Sultanbawa, The University of Queensland, Australia

Queensland grown Queen Garnet plum: Nutritious and healthy - a case study – 122

Michael Netzel, The University of Queensland, Australia

Buchanania Obovata: An Australian Indigenous food for diet diversification – 123

Selina Fyfe, The University of Queensland, Australia

Panel discussion

1.5

Meeting room P9

Systems approaches for sustainable intensification: Lessons learned and opportunities

Chairs: John Dixon, Australian Centre for International Agricultural Research (ACIAR), Australia and Vara Prasad, Kansas State University, USA

Enhancing youth economic participation and entrepreneurship in agriculture – 124

Fahad Awadh, YITZ Agro Processing, Tanzania

Using sustainable intensification principles to increase productivity of maize and wheat system – 125

Hans-Joachim Braun, International Maize and Wheat Improvement Center (CIMMYT), Mexico

Enhancing smallholder agricultural productivity, resilience and sustainability: Initial evidences from eastern and southern Africa – 126

Mulugetta Mekuria, International Maize and Wheat Improvement Center (CIMMYT), Zimbabwe

Overview of ACIAR programs focused on systems approaches for sustainable intensification – 127

Andrew Campbell, Australian Centre for International Agricultural Research (ACIAR), Australia

Legume intensification for food security and sustainability in Africa – 128

Sieglinde Snapp, Michigan State University, USA

Overview of systems approaches for sustainable intensification in China – 129

Lingling Li, Gansu Agricultural University, China

12:30 – 13:30

Lunch and poster viewing

Supported by
 Australian Government
Australian Centre for
International Agricultural Research

13:30 – 15:30

Concurrent symposium session 2

2.1

Meeting room P11

Genes, phenes and flying machines

Chair: Andrew Borrell, The University of Queensland, Australia

UAV-based phenotyping of crop plants in field trials – 130

Mitch Tuinstra, Purdue University, USA

Characterizing the sorghum pan genome – 131

Todd Mockler, Donald Danforth Plant Science Center, USA

Exploring and exploiting natural variation in sorghum – 132

Emma Mace, Department of Agriculture and Fisheries, Queensland Government, Australia

Exploring the crop adaptation landscape in silico – 133

Graeme Hammer, The University of Queensland, Australia

Building new sorghum varieties in the 21st century – 134

David Jordan, The University of Queensland, Australia

2.2

Meeting room P10

Market-driven approaches to plant breeding in tropical horticultural crops

Chair: Gabrielle Persley, The University of Queensland, Australia

Tropical tomato breeding for Australian markets – satisfying the diverse needs of producers, retailers and consumers – 135

Des McGrath, Department of Agriculture and Fisheries, Queensland Government, Australia

Demand-led approaches in the tomato industry in Ghana: Challenges and opportunities for breeding and crop improvement – 136

Agyemang Danquah, University of Ghana, Ghana

Maximizing the impact of common bean (*Phaseolus vulgaris*) breeding for farmers and other value chain actors in East, Central and Southern Africa – 137

Jean-Claude Rubyogo, International Centre for Tropical Agriculture, Tanzania

Connecting public and private breeders and new vegetable varieties to developing markets in SE Asia and Sub-Sahara Africa – 138

Clive Murray, Syngenta Foundation for Sustainable Agriculture, Australia

Custard apple – breeding for Australian domestic and export markets – 139

Grant Bignell, Department of Agriculture and Fisheries, Queensland Government, Australia

Tropical horticulture – exploring new approaches for sustainable funding of plant breeding in developing countries – 140

Vivienne Anthony, Syngenta Foundation for Sustainable Agriculture, Switzerland

2.3

Meeting room P7

Diagnostic platforms - from dreams to reality

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Chairs: Ala Tabor, Pat Blackall and Conny Turni, The University of Queensland, Australia

Development of point-of-care and multiplex diagnostic methods for the detection of plant and poultry pathogens – 141

Jimmy Botella, The University of Queensland, Australia

Point-of-site nanotechnologies for health and agricultural applications – 142

Matt Trau, The University of Queensland, Australia

From research to front line laboratory – 143

Aileen Vanderfeen, ACE Laboratory Services, Australia

Diagnostic tools used to genotype and detect tick fever pathogens in cattle – 144

Peter Rolls, Department of Agriculture and Fisheries, Queensland Government, Australia

A mass spectrometric targeted approach for the detection of exosomal protein biomarkers from bovine body fluids – 145

Yong Qin Koh, The University of Queensland, Australia

Use of mobile technologies for research and engagement of smallholder cattle farmers in Vanuatu – 146

Stephenson Boe, Department of Livestock, Vanuatu

2.4

Meeting room P8

Food safety, authenticity and adulteration in global food supply chains

Chair: Peter Horne, Australian Centre for International Agricultural Research (ACIAR), Australia

Identifying and managing new hazards in the food supply – 147

Glenn Stanley, Food Standards Australia New Zealand, Australia

Food authenticity and traceability using stable isotopes – 148

James Carter, Queensland Health Forensic and Scientific Services, Australia

Mycotoxins in the food supply chain and promising interventions – 149

Mary Fletcher, The University of Queensland, Australia

Rapid detection methods for food adulteration and authentication – 150

Daniel Cozzolino, Central Queensland University, Australia

Oritain - Proving origin, protecting reputations – 151

Sandon Adams, Oritain Global Limited, Australia

Molecular detection of *Toxoplasma gondii* infection in small ruminants in Northwest Tunisia – 152

Yosra Amdouni, National School of Veterinary Medicine of Sidi Thabet, Tunisia

2.5

Meeting room P9

Opportunities and constraints in intensifying agriculture in tropical Australia

Chair: Andrew Ash, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Policy drivers of water resource development for agriculture in northern Australia – 153

Richard McLoughlin, Department of Agriculture and Water Resources, Australia

Maximising the cost-effectiveness of water supply in northern Australia – 154

Cuan Petheram, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Expanded agriculture in Northern Australia: The need for improved transport logistics – 155

Andrew Higgins, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Managing the impacts of agriculture to minimize offsite environmental impacts: A case study for nitrogen in the GBR lagoon – 156

Michael Bell, The University of Queensland, Australia

Opportunities and constraints for irrigated agriculture in the Northern Territory – 157

Mila Bristow, Northern Territory Department of Primary Industry and Fisheries, Australia

Economic drivers of agricultural development in northern Australia – 158

Ian Baker, North Australian Agribusiness Management, Australia

15:30 – 16:00

Afternoon tea

16:00 – 18:00

Concurrent symposium session 3

3.1

Meeting room P9

Drought Risk Management - connecting science and policy

Chair: Roger Stone, University of Southern Queensland, Australia

Transitions and transformations-drought, hotspots, and adaptation – 159

Roger Pulwarty, National Oceanic and Atmospheric Administration, USA

Benefits of action and costs of inaction: Drought mitigation and preparedness – 160

Frederik Pischke, Integrated Drought Management Program, Switzerland

Modes of climate variability and drought forecasting – 161

James Risbey, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Building a National Drought Center: Science and policy approaches and experiences from the National Drought Mitigation Center's perspective – 162

Mark Svoboda, US National Drought Mitigation Center, USA

Improving drought monitoring and prediction science and services – 163

Neil Plummer, Bureau of Meteorology, Australia

3.2

Meeting room P10

Remote sensing in agriculture and horticulture

Chairs: Andries Potgieter, The University of Queensland, Australia and Andrew Robson, University of New England, Australia

Remote sensing applications for agricultural and horticultural crops: From the individual tree to whole of industry – 164

Andrew Robson, University of New England, Australia

Mapping horticultural tree crops in Australia – 165

Joel McKechnie, Department of Science, Information Technology and Innovation (DSITI), Australia

Intelligent sensing and information systems for tree crops – 166

James Underwood, The University of Sydney, Australia

UAV imagery and its role in tactical agronomy trials – 167

James McLean, The University of Queensland, Australia

Estimating regional scale crop production: An integrated climate, biophysical and remote sensing approach – 168

Andries Potgieter, The University of Queensland, Australia

New frontiers in crop stress detection from satellites measurements of fluorescence, soil moisture, and canopy temperatures – 169

Alfredo Huete, University of Technology, Sydney, Australia

3.3

Meeting room P7

Designing animal genomes for the tropics

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Chair: Ben Hayes, The University of Queensland, Australia

The genomic architecture of tick resistance – 170

Mahlako Makgahlela, Agricultural Research Council, South Africa

Cutting and pasting: The future of genetic improvement for food animal genomes – 171

Tad Sonstegard, Recombinetics, USA

The evolution of the Brahman genome - a crucial tropically adapted breed – 172

Stephen Moore, The University of Queensland, Australia

Combining historical weather station records, climate change predictions and genomics to breed dairy cattle for future climates – 173

Thuy Nguyen, Agriculture Research Victoria, Australia

Use of genomic technologies and composite cattle breeding within a large Northern Australian beef breeding enterprise – 174

Sam Harburg, The North Australian Pastoral Company, Australia

3.4

Meeting room P8

Food: The key to health and wellbeing

Chair: Yaw (Chris) Siow, Agriculture and Agri-Food Canada, Canada

Mediterranean diet in the tropics? – 175

Lluís Serra-Majem, University of Las Palmas de Gran Canaria, Spain

Fatty liver: It is not just about fat - nutritional impact on non-alcoholic fatty liver disease (NAFLD) – 176

Karmin O, University of Manitoba, Canada

Tropical fruits as functional foods for metabolic syndrome – 177

Lindsay Brown, University of Southern Queensland, Australia

Gut microbiome - our life partner, for better or worse? – 178

Connie Woo, The University of Hong Kong, Hong Kong SAR

Berries for your renal health – 179

Yaw (Chris) Siow, Agriculture and Agri-Food Canada, Canada

The creation of employment, economic and social benefits to remote Australian communities through novel and added value products from native plants – 180

Yasmina Sultanbawa, The University of Queensland, Australia

3.5

Meeting room P11

Managing climate risk and trade-offs in agriculture

Chair: Tom Davison, Managing Climate Variability Program, Australia

Informing the design of climate resilient farming systems – 181
Daniel Rodriguez, The University of Queensland, Australia

Managing risks and trade-offs in the intensification of agriculture: An ecologist perspective – 182
Kerrie Wilson, The University of Queensland, Australia

What do we want and what are we likely to get? – 183
Peter Hayman, South Australian Research and Development Institute, Australia and Harry Hendon, Bureau of Meteorology, Australia

Behavioural economics insight into drivers and constraints in the adoption of technologies – 184
Lionel Page, Queensland University of Technology, Australia

Designing less risky systems through investing in the adaptive capacity of farmers – 185
Nadine Marshall, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Summing up on key messages, expected outcomes, metrics and tools to manage risks and trade-offs from the intensification of agriculture
Derek Byerlee, Georgetown University, USA

18:00 – 20:00

Plaza Auditorium foyer

Welcome reception and poster viewing

Tuesday 21 November 2017

07:30 – 18:00

Plaza Auditorium foyer

Registration desk open

06:45 – 08:30

Meeting room P10

Rural Press Club breakfast

Regulation and Market Access of Gene-Edited and GMO Food and Products
(optional – tickets must have been pre-purchased)

08:40 – 09:15

Plaza Auditorium

Keynote presentation

Chair: Francis Ogonnaya, Grains Research and Development Corporation, Australia

Targeted plant breeding applications of CRISPR-Cas technology – 200
Kevin Diehl, Director, Regulatory Product Strategy, Scientific Affairs and Industry Relations, DuPont Pioneer, USA

09:15 – 09:55

Keynote presentation

Chair: Sarah Meibusch, OneVentures; Advisory Board Member, Queensland Alliance for Agriculture and Food Innovation (QAAFI), The University of Queensland, Australia

The contributions of animal-source food to sustainable, safe, ethical and optimal human diets – 201
Robyn Alders, Principal Research Fellow, Faculty of Veterinary Science, The University of Sydney, Australia

09:55 – 10:25

Morning tea

10:30 – 12:30

Concurrent session symposium 4

4.1

Meeting room P8

Accelerated data gathering for modern agriculture

AgFutures

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Chair: Simon White, Central Queensland University, Australia

Beyond digital revolution - today's research for tomorrow's livestock tools – 202
Doug McNicholl, Meat and Livestock Australia, Australia

Using data to change tomorrow's farm activities with power of prediction – 203
James Rowe, Sheep Cooperative Research Centre (CRC), Australia

How do we get our heads out of the sand when they are up in the clouds? – 204
David McLean, Resource Consulting Services, Australia

The digital agronomist – the changing face of farm advisory – 205
Tim Neale, Premise, Australia

Beyond the accepted methods - new targets for automated data gathering on farm – 206
Daniel Cozzolino, Central Queensland University, Australia

GPS cows: Bringing ag data and new technologies into high schools – 207
Amy Cosby, Central Queensland University, Australia

4.2

Meeting room P11

The future of genomic selection in crops, horticulture and livestock

Chair: Mark Cooper, Zenrun42, USA

Prediction based crop improvement by combining whole genome prediction with crop growth models – 208
Mark Cooper, Zenrun42, USA

Why was genomic selection so rapidly adopted in the US beef and dairy industries? – 209
Stewart Bauck, Neogen GeneSeek Operations, USA

Speed breeding with genomic selection to accelerate wheat variety development – 210
Amy Watson, The University of Queensland, Australia

Large scale genomic selection in tropically adapted cattle to improve fertility and meat quality – 211
Matthew Kelly, Australian Agricultural Company, Australia

Genomic selection in horticulture – 212
Satish Kumar, The Institute for Plant and Food Research Limited, New Zealand

The future of genomic selection - incorporating biological information in genomic predictions – 213
Iona MacLeod, Department of Economic Development, Jobs, Transport and Resources, Australia

4.3

Meeting room P10

Biofortification of horticultural crops for human health

Chair: Heather Smyth, The University of Queensland, Australia

Lessons from temperate crops for tropical crop biofortification – 214

Roger Hellens, Queensland University of Technology, Australia

High folate strawberries - finally something tasty! – 215

Michael Netzel, The University of Queensland, Australia

Sweetcorn biofortification - is a 1000% increase possible? – 216

Tim O'Hare, The University of Queensland, Australia

High vitamin A bananas - a first for Africa – 217

James Dale, Queensland University of Technology, Australia

Potential health benefits of breeding high flavonoid apples – 218

Jonathan Hodgson, Edith Cowan University, Australia

Not another typical corny trial: Genetic and agronomic zinc biofortification of sweetcorn – 219

Zhong Xiang Cheah, The University of Queensland, Australia

4.4

Meeting room P7

Antimicrobial resistance and food animal production systems – global, regional and national perspectives

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Medicines
Australia

Chair: Pat Blackall, The University of Queensland, Australia

A global perspective on the responsible use of antimicrobials in veterinary medicine – 220

Shabbir Simjee, Elanco Animal Health, UK

Antimicrobial resistance surveillance in livestock in Australia – 221

Darren Trott, The University of Adelaide, Australia

Antimicrobial use and stewardship in animal health in Australia – 222

Glenn Browning, The University of Melbourne, Australia

Caeci Caecos Ducentes – 223

Pat Blackall, The University of Queensland, Australia

Molecular detection of tetracycline resistance genes in salmonella isolated from pork and poultry egg – 224

Paula Blanca Gaban, Philippine Carabao Center, Philippines

4.5

Meeting room P9

Smallholder participation in global value chains: Implications for inclusive and sustainable agricultural development

Chair: Derek Byerlee, Georgetown University, USA

Assessing the role of public institutions in facilitating an inclusive global value chain: A comparative analysis of the natural rubber industry in South and Southeast Asia – 225

Muhammad Fadzli Ali, The University of Queensland, Australia

Smallholder participation in palm oil value chains in Malaysia, Indonesia, and Thailand – 226

Rob Cramb, The University of Queensland, Australia

Developing value chain linkages to improve smallholder cassava production in Southeast Asia – 227

Dominic Smith, The University of Queensland, Australia

The economics of smallholder cattle production and marketing in Eastern Indonesia – 228

Scott Waldron, The University of Queensland, Australia

How does participating in an inclusive global value chain impact smallholder coffee producers in Indonesia? – 229

Yanti Nuraeni Muflikh, The University of Queensland, Australia

Integrating small-scale vegetable farmers to better access high-end markets in Dili: The case of Josephina Farms with contract farming – 230

Vicente Correia, National University of Timor-Leste, Timor-Leste

12:30 – 13:30

Lunch and poster session

13:30 – 15:30

Concurrent session symposium 5

5.1

Meeting room P8

Next Gen Scientist: What's your move?

DuPont Pioneer student-led plant sciences symposium Part I
Technical Challenges

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Chair: Chris Proud, The University of Queensland, Australia

Welcome remarks

Tabare Abadie, DuPont Pioneer, USA

The developing of genotyping and its future – 232

Robert Henry, The University of Queensland, Australia

Automated phenotyping and analytics – 233

Michael Schaefer, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

Statistical perspective in the era of big data: Can dead fish read human minds? – 234

Alison Kelly, Department of Agriculture and Fisheries, Queensland Government, Australia

Phenotypic prediction augmented through crop model-whole genome prediction: Application to ARGOS8 – 235

Charlie Messina, DuPont Pioneer, USA

Biotechnologies and the future of plant improvement – 236

Jimmy Botella, The University of Queensland, Australia

5.2

Meeting room P9

Biorefineries - value adding to agriculture by producing fuels, chemicals and feeds from agricultural crops and residues

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Chair: Ian O'Hara, Queensland University of Technology, Australia

Biofutures – opportunities for agriculture in biobased fuels and bioproducts – 237

Ian O'Hara, Queensland University of Technology, Australia

Discovery, evaluation and manufacture of new livestock feed supplements – 238

Robert Speight, Queensland University of Technology, Australia

Biogas production from energy crops and agricultural residues – 239

Prasad Kaparaju, Griffith University, Australia

Converting agricultural wastes into valuable products – 240

Paul Jensen, The University of Queensland, Australia

Cellulose nanofibres from spinifex arid grasses: “Unique properties and applications under development” – 241

Darren Martin, The University of Queensland, Australia

Brassica carinata: The sky is the limit – 242

Anthony van Herwaarden, The University of Queensland, Australia

5.3

Meeting room P11

Tropical pulses rising to meet future demands

Chair: Rex Williams, Department of Agriculture and Fisheries, Queensland Government, Australia

Expected market opportunities and demand profiles for tropical pulses to 2022 – 243

Peter Wilson, AGT Foods Australia, Australia

Sustainability and profit drivers for tropical pulses in sustainable cropping systems – 244

Michael Bell, The University of Queensland, Australia

Breeding strategies unlock genetic potential of pulses – 245

Pooran Gaur, International Crops Research Institute for the Semi-Arid Tropics, India

New genetic tools and solutions to make pulse crops more resilient to variable climates – 246

Sagadevan Mundree, Queensland University of Technology, Australia

Physiological, agronomic and modelling approaches to optimise productivity of tropical pulses – 247

Rao (RCN) Rachaputi, The University of Queensland, Australia

The past is history: A case study of Queensland's successful chickpea industry – 248

Merrill Ryan, Department of Agriculture and Fisheries, Queensland Government, Australia

5.4

Meeting room P10

Profitable tropical and subtropical orchards

Chairs: Bruce Topp and Jim Hanan, The University of Queensland, Australia

A research effort to improve subtropical and tropical tree crop productivity through intensification – 249

John Wilkie, Department of Agriculture and Fisheries, Queensland Government, Australia

Diurnal variation in the sensitivity of 'Honey Gold' mango fruit to developing under-skin browning – 250

Andrew Macnish, Department of Agriculture and Fisheries, Queensland Government, Australia

Pollination in macadamia – 251

Brad Howlett, The New Zealand Institute for Plant and Food Research Ltd, New Zealand

Breeding for adaptation during climate change: Hitting a moving target – 252

José Chaparro, University of Florida, USA

Insights into the Avocado-Phytophthora Interaction – 253

Alice Hayward, The University of Queensland, Australia

A new approach in oil palm harvesting improvement – 254

Wan Rusydiah W Rusik and Mohd Zulfahmi Mohd Yusoff, Sime Darby Plantation, Malaysia

5.5

Meeting room P7

Growing tropical aquaculture

Chair: Dean Jerry, James Cook University, Australia

The tropical aquaculture powerhouse - global impacts and opportunities for Australia – 255

Nigel Preston, The University of Queensland, Australia

Meeting the growing demand for aquaculture - balancing biological requirement, sustainability and environment – 256

Richard Smullen, Ridley Agrifoods, Australia

Making aquaculture sustainable in the tropics – growing algae to reduce nutrification and produce high-value products – 257

Arnold Mangott, MBD Energy Limited, Australia

Breeding for disease resistance in Australian shrimp: How do we get there? – 258

Tansyn Noble, James Cook University; Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

The blacklip oyster – an alternative for tropical aquaculture in Australia? – 259

Carmel McDougall, Griffith University, Australia

In-vitro oocyte maturation by radial nerve extract and fertilization of the black sea cucumber *holothuria leucospilota* – 260

Chieu Hoang, University of the Sunshine Coast, Australia

15:30 – 16:00

Afternoon tea

Supported by



16:00 – 18:00

Concurrent session symposium 6

6.1

Meeting room P8

Next Gen Scientist: What's your move?

DuPont Pioneer student-led plant sciences symposium Part II Career Challenges

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Chair: Xuemin Wang, The University of Queensland, Australia

Captilising your knowledge

Duncan Ferguson, UniQuest, The University of Queensland, Australia

Family and science - a work-life balance

Jaquie Mitchell, The University of Queensland, Australia

Planning your career before and after graduation

Sandra Dunckel, LongReach Plant Breeders, Australia

Q&A career progression in plant science

Facilitator: Karen Graham, The University of Queensland, Australia

Panellists: Dean Podlich, DuPont Pioneer, USA

Vivienne Anthony, Syngenta Foundation for Sustainable Agriculture, Switzerland

Christine Beveridge, The University of Queensland, Australia

Greg Rebetzke, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

6.2

Meeting room P9

Emerging trends and opportunities for engineering technologies in tropical agriculture

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Chair: Craig Baillie, University of Southern Queensland, Australia

Techniques and platforms for high-throughput phenotyping of canopies and plants – 261

Xavier Sirault, Australian Plant Phenomics Facility, Australia

How would Google farm? – 262

Alex Thomasson, Texas A&M University, USA

Autonomous adaptive precision irrigation for broad-acre agriculture – 263

Joseph Foley, University of Southern Queensland, Australia

Seeking energy independence – 264

Bernadette McCabe, University of Southern Queensland, Australia

Animal sensing will take the industry back 100 years – 265

Mark Trotter, Central Queensland University, Australia

Field robotics in agriculture – 266

Mark Calleija, Australian Centre for Field Robotics, The University of Sydney, Australia

6.3

Meeting room P11

Climate change-ready rice

Chair: Antonio Costa de Oliveira, Federal University of Pelotas, Brazil

Systems genetic studies of photosynthesis and water use efficiency in rice – 267

Andy Pereira, University of Arkansas, USA

Development of rice varieties for multi abiotic- stress tolerance in the Mekong region and Australia – 268

Shu Fukai, The University of Queensland, Australia

Mapping, mining and tracking tools to locate and harness climate resilience in rice – 269

Tobias Kretzschmar, International Rice Research Institute, Philippines

Climate-smart rice production for Australia and Asia – 270

Andrew Borrell, The University of Queensland, Australia

Generating useful genetic variation in crops by induced mutation – 271

Apichart Vanavichit, Rice Science Center, Thailand

Iron tolerance in rice – 272

Antonio Costa de Oliveira, Federal University of Pelotas, Brazil

6.4

Meeting room P7

Enhancing the efficiency of rumen fermentation in tropical systems

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Chair: Dennis Poppi, The University of Queensland, Australia

Microbial manipulation of rumen efficiency – 273

Athol Klieve, The University of Queensland, Australia

Estimating the efficiency of rumen microbial protein synthesis in cattle grazing tropical pastures, and implications for animal performance – 274

Maree Bowen, Department of Agriculture and Fisheries, Queensland Government, Australia

The relationship of efficiency of microbial crude protein production with rumen microbial community structure in steers fed tropical pastures – 275

Karen Harper, The University of Queensland, Australia

Changing the interplay between gut and host to improve production efficiency of ruminants – 276

Roger Hegarty, University of New England, Australia

What is the actual role of rumen for supplemented grazing cattle? – 277

Edenio Detmann, Federal University of Viçosa, Brazil

Live yeast supplementation improves rumen fibre degradation in cattle grazing tropical pastures throughout the year – 278

Luis Felipe Prada e Silva, The University of Queensland, Australia

6.5

Meeting room P10

Regulatory oversight of plants and animals developed through new breeding innovations

Supported by

**Chair:** TJ Higgins, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia**Regulation and advancing GM technologies – 279**

Raj Bhula, Office of the Gene Technology Regulator, Australia

Regulatory oversight of new breeding innovations in the US – 280

Alison Van Eenennaam, University of California, USA

Regulation of new breeding innovations – implications for the grain trade – 281

Rosemary Richards, Grain Trade Australia, Australia

Panel discussion: What would the 'ideal' system for regulatory oversight of these new breeding innovations look like?**18:00 – 19:00**

Plaza Terrace

TropAg2017 Research Partner VIP drinks

Hosted by The University of Queensland (by invitation)

19:00 – 23:00

Boulevard Room

TropAg2017 conference dinner

(optional – tickets must have been pre-purchased)

Wednesday 22 November 2017

08:00 – 15:30

Plaza Auditorium foyer

Registration desk open**06:45 – 08:15**

Meeting room P9

Gender and Food breakfast

(optional – tickets must have been pre-purchased)

08:40 – 09:15

Plaza Auditorium

Keynote presentation**Chair:** Lynne Turner, Department of Agriculture and Fisheries, Queensland Government, Australia**The Mediterranean Diet: A healthy and traditional dietary pattern embedded in a sustainable food system – 300**

Luis Serra-Majem, University of Las Palmas de Gran Canaria, Spain

09:15 – 09:55**Keynote presentation****Chair:** Vicki Lane, Department of Agriculture and Fisheries, Queensland Government, Australia**The changing face of horticulture: Hello tomorrow! – 301**

Neena Mitter, The University of Queensland, Australia

09:55 – 10:25**Morning tea****10:30 – 12:30****Concurrent symposium session 7****7.1**

Meeting room P9

AgFutures: Can nanotechnology set the scene?**AgFutures**

Supported by

**Chairs:** Mike Pointon, Nufarm Ltd, Australia and Neena Mitter, The University of Queensland, Australia**Combining nanotechnology and molecular recognition for fertiliser applications – 302**

Maria DeRosa, Carleton University, Canada

Regulatory science and agricultural innovation: Where do we stand? – 303

Phil Reeves, Australian Pesticides and Veterinary Medicines Authority, Australia

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Chengzhong (Michael) Yu, The University of Queensland, Australia

BioClay for crop protection against viruses – 307

Elizabeth Worrall, The University of Queensland, Australia

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Sugarcane – constraints on production

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Sugar Research
Australia**Chair:** Frikkie Botha, Sugar Research Australia, Australia**Constraints on photosynthetic efficiency in C4 crops, with special references to sugarcane – 308**

Rowan Sage, University of Toronto, Canada

Licence to farm: Why nitrogen use efficiency matters and how we can achieve it in sugarcane – 309

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Application of high-throughput phenomics for sugarcane trait development and variety improvement – 311

Prakash Lakshmanan, Sugar Research Australia, Australia

Sensitivity and plasticity of sugarcane leaf metabolism during stress – 312

Annelie Marquardt, Sugar Research Australia, Australia

Using genomic sequencing to understand the sugarcane genome structure – 313

Karen Aitken, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

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The role of animal welfare in tropical animal production

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Chair: Alan Tilbrook, The University of Queensland, Australia

The role of animal welfare in tropical beef production – 314
Karen Schwartzkopf-Genswein, Agriculture and Agri-Food Canada, Canada

Animal welfare issues in the grazing beef industry of northern Australia – 315
Michael McGowan, The University of Queensland, Australia

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Nana Satake, The University of Queensland, Australia

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Siaka Diarra, The University of the South Pacific, Samoa

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Edward Narayan, Western Sydney University, Australia

Feather-eating is related to stress level and sucrose preference in laying hens – 319
Sungbo Cho, Queensland Alliance for Agriculture and Food Innovation (QAAFI), Australia

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Rice: Diverse and delicious

Chair: Melissa Fitzgerald, The University of Queensland, Australia

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Melissa Fitzgerald, The University of Queensland, Australia

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Qiao-Quan Liu, Yangzhou University, China

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Russell Ford, Rice Research Australia, Australia

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Robert Gilbert, The University of Queensland, Australia; Yangzhou University, China

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Ali Mohammad Moner, The University of Queensland, Australia

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Ben Ovenden, NSW Department of Primary Industries, Australia

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Meeting room P10

Unlocking the potential of tropical crop diversity for future food security

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Chair: Ruth Bastow, Global Plant Council - Diversity Seek Initiative, United Kingdom

The role of Australia's genebanks and crop wild relatives in all our futures – 326
Sally Norton, Agriculture Victoria, Australia

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Norman Warthmann, Australian National University, Australia

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Lunch and poster session

13:30 – 14:05

Plaza Auditorium

Keynote presentation

Chair: Peter Horne, Australian Centre for International Agricultural Research, Australia

Approaches to tackling global crop production challenges – 332
Hans-Joachim Braun, International Maize and Wheat Improvement Center, (CIMMYT), México

14:05 – 14:40

Closing panel and closing comments

Facilitator: Robert Henry, Director of the Queensland Alliance for Agriculture and Food Innovation (QAAFI), Chair, Trop-Ag2017 International Advisory Committee

Panellists: Sarah-Jane Wilson, Derek Byerlee, Robyn Alders, Judith Kimiywe

18:00 – 20:00

Customs House,
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