TropAg2017
International Tropical Agriculture Conference
High impact science to nourish the world
20-22 November 2017 | Brisbane Convention & Exhibition Centre, Australia
Incorporating AgFutures
Showcasing agri-technology and investment in agriculture
Program
tropagconference.org
### Preliminary Program

Draft program as at 20 July 2017, subject to change

**Monday 20 November 2017**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
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<tr>
<td>08:15 – 08:30</td>
<td>Conference opening</td>
<td>Robert Henry, Director of the Queensland Alliance for Agriculture and Food Innovation (QAAFI), Chair, TropAg2017 International Advisory Committee</td>
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<tr>
<td>08:30 – 09:15</td>
<td>Keynote presentation</td>
<td>Derek Byerlee, Georgetown University, USA</td>
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<tr>
<td>09:15 – 09:55</td>
<td>Keynote presentation</td>
<td>Judith Kimiywe, Kenyatta University, Kenya</td>
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<td>09:55 – 10:25</td>
<td>Morning tea</td>
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<tr>
<td>10:30 – 12:30</td>
<td>Concurrent symposium session 1</td>
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<tr>
<td>1.1</td>
<td>Photosynthesis in the field: Phenomics, genomics, and modelling</td>
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<tr>
<td>1.2</td>
<td>Ensuring the health and growth of horticulture</td>
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<tr>
<td>1.3</td>
<td>Harnessing advances in livestock science to deliver sustainable development goals</td>
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### Concurrent Symposia

#### 1.1 Photosynthesis in the field: Phenomics, genomics, and modelling

- **Chair:** Bob Furbank, The Australian National University, Australia
- **Photons to food; Improving photosynthesis and yield potential in C3 and C4 crops**
  - 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**
  - Barbara George-Jaeggli, The University of Queensland, Australia
- **Modelling likely field impacts of modifying photosynthesis**
  - Alex Wu, The University of Queensland, Australia
- **Genetics underpinning enhanced photosynthesis in rice**
  - Robert Coe, International Rice Research Institute, The Philippines

#### 1.2 Ensuring the health and growth of horticulture

- **Chair:** André Drenth, The University of Queensland, Australia
- **Impact of genomics on plant protection in bananas**
  - Gert Kema, Wageningen Agricultural University, The Netherlands
- **International trends in Horticultural production systems**
  - Arie Baelde, Rijk Zwaan, Australia
- **Impacts of plant breeding on the Australian mandarin industry**
  - Malcolm Smith, Department of Agriculture and Fisheries, Queensland Government, Australia
- **Reducing the impact of diseases on productivity and quality of avocado**
  - Elizabeth Dann, The University of Queensland, Australia
- **Prospects for genetic improvement of macadamia**
  - Bruce Topp, The University of Queensland, Australia

#### 1.3 Harnessing advances in livestock science to deliver sustainable development goals

- **Chair:** Lindsay Falvey, University of Melbourne, and Jimmy Smith, International Livestock Research Institute, Australia
- **Sustainable livestock - integrated approaches for multiple benefits**
  - Henning Steinfeld, Food and Agriculture Organization of the United Nations, Italy
- **Key pathways for the livestock sector, sustainable intensification and mitigating vulnerability**
  - Thomas Randolph, International Livestock Research Institute, Kenya
- **Delivering livestock science solutions for development outcomes through 2 distinct approaches: Philanthropy and shared value**
  - Jessica Ramsden, Elanco Animal Health, Australia
- **New livestock genetics and genomics solutions and applications in the tropics**
  - Appolinaire Djikeng, The University of Edinburgh, UK
- **Animal and human health: A dangerous intersection or healthy future?**
  - Delia Grace, International Livestock Research Institute, Kenya
- **Optimizing the environmental footprint of livestock production**
  - Polly Erickson, International Livestock Research Institute, Kenya
<table>
<thead>
<tr>
<th>1.4 Harnessing Indigenous foods for diet diversification</th>
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<tbody>
<tr>
<td><strong>Chair:</strong> Yasmina Sultanbawa, The University of Queensland, Australia</td>
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<tr>
<td><strong>Improving food and nutrition security through dietary diversification: Promoting the rich Kenyan cuisine</strong></td>
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<tr>
<td>Judith Kimiywe, Kenyatta University, Kenya</td>
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<tr>
<td><strong>Selection of suitable Kei-apple lines based on phytochemical content for functional product development</strong></td>
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<tr>
<td>Dharini Sivakumar, Tshwane University of Technology, South Africa</td>
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<tr>
<td><strong>Value added nutritionally rich products from wattle seed (Acacia sp.)</strong></td>
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<tr>
<td>Yasmina Sultanbawa, The University of Queensland, Australia</td>
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<tr>
<td><strong>Queensland grown Queen Garnet plum: Nutritious and healthy - a case study</strong></td>
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<tr>
<td>Michael Netzel, The University of Queensland, Australia</td>
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<td><strong>Buchanania Obovata: An Australian Indigenous food for diet diversification</strong></td>
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<tr>
<td>Selina Fyle, The University of Queensland, Australia</td>
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<tr>
<td><strong>Characteristic of antioxidant and glycemic index on foodbar based purple yam and red bean flour as sustainable food for Type 2 Diabetes Mellitus</strong></td>
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<td>A Iqbal Banuaji, Sebelas Maret University, Indonesia</td>
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<tr>
<th>1.5 Systems approaches for sustainable intensification: Lessons learned and opportunities</th>
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<tbody>
<tr>
<td><strong>Chairs:</strong> John Dixon, Australian Centre for International Agricultural Research, Australia; Vara Prasad, Kansas State University, USA</td>
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<tr>
<td><strong>Enhancing youth economic participation and entrepreneurship in agriculture</strong></td>
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<td>Fahad Awadh, YTTY Agro Processing, Tanzania</td>
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<tr>
<td><strong>Using SI principles to increase productivity of maize and wheat system</strong></td>
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<tr>
<td>Martin Kroppf, International Maize and Wheat Improvement Center (CIMMYT), Mexico</td>
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<tr>
<td><strong>Overview of ACIAR programs focused on systems approaches for SI</strong></td>
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<tr>
<td>Andrew Campbell, Australian Centre for International Agricultural Research (ACIAR), Australia</td>
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<td><strong>Legume intensification for food security and sustainability in Africa</strong></td>
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<tr>
<td>Sieglinde Snapp, Michigan State University, USA</td>
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<tr>
<td><strong>Overview of systems approaches for sustainable intensification in China</strong></td>
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<tr>
<td>Lingling Li, Gansu Agricultural University, China</td>
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<tr>
<th>12:30 – 13:30 Lunch and poster session</th>
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<td>13:30 – 15:30 Concurrent symposium session 2</td>
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<table>
<thead>
<tr>
<th>2.1 Genes, phenes and flying machines</th>
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<tr>
<td><strong>Chair:</strong> Andrew Borrell, The University of Queensland, Australia</td>
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<tr>
<td><strong>UAV-based phenotyping of crop plants in field trials</strong></td>
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<td>Mitch Tuinstra, Purdue University, USA</td>
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<td><strong>Characterizing the sorghum pan genome</strong></td>
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<td>Todd Mockler, Donald Danforth Plant Science Center, USA</td>
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<td><strong>Exploring and exploiting natural variation in sorghum</strong></td>
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<td>Emma Mace, Department of Agriculture and Fisheries, Queensland Government, Australia</td>
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<td><strong>Exploring the crop adaptation landscape in silico</strong></td>
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<td>Graeme Hammer, The University of Queensland, Australia</td>
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<td><strong>Building new sorghum varieties in the 21st century</strong></td>
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<td>David Jordan, The University of Queensland, Australia</td>
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<tr>
<th>2.2 Market-driven approaches to plant breeding in tropical horticultural crops</th>
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<tr>
<td><strong>Chair:</strong> Gabrielle Persley, The University of Queensland, Australia</td>
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<tr>
<td><strong>Tropical tomato breeding for Australian markets – satisfying the diverse needs of producers, retailers and consumers</strong></td>
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<tr>
<td>Des McGrath, Department of Agriculture and Fisheries, Queensland Government, Australia</td>
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<tr>
<td><strong>Demand-led approaches in the tomato industry in Ghana: Challenges and opportunities for breeding and crop improvement</strong></td>
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<tr>
<td>Aygerman Dzankah, University of Ghana, Ghana</td>
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<tr>
<td><strong>Maximising the impact of Phaseolus bean breeding for farmers, processors and consumers in East, Central and Southern Africa</strong></td>
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<tr>
<td>Jean-Claude Rubyogo, International Centre for Tropical Agriculture, Tanzania</td>
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<tr>
<td><strong>Connecting public and private breeders and new vegetable varieties to developing markets in SE Asia and Sub-Saharan Africa</strong></td>
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<tr>
<td>Clive Murray, Syngenta Foundation for Sustainable Agriculture, Australia</td>
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<tr>
<td><strong>Custard apple – breeding for Australian domestic and export markets</strong></td>
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<tr>
<td>Grant Bignell, Department of Agriculture and Fisheries, Queensland Government, Australia</td>
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<tr>
<td><strong>Tropical horticulture – exploring new approaches for sustainable funding of plant breeding in developing countries</strong></td>
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<tr>
<td>Vivienne Anthony, Syngenta Foundation for Sustainable Agriculture, Switzerland</td>
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</tbody>
</table>
### 2.3 Diagnostic platforms - from dreams to reality
**Chairs:** Ala Tabor, Pat Blackall, Conny Turni, The University of Queensland, Australia

- Development of point-of-care and multiplex diagnostic methods for the detection of plant and poultry pathogens
  - Jimmy Botella, The University of Queensland, Australia
- Point-of-site nanotechnologies for health and agricultural applications
  - Matt Trau, The University of Queensland, Australia
- From research to front line laboratory
  - Aileen Vanderfeen, ACE Laboratory Services, Australia
- Diagnostic tools used to genotype and detect tick fever pathogens in cattle
  - 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
  - Yong Qin Koh, The University of Queensland, Australia
- Use of mobile technologies for research and engagement of smallholder cattle farmers in Vanuatu
  - Stephenson Boe, Department of Livestock, Vanuatu

**Supported by zoetis**

### 2.4 Food safety, authenticity and adulteration in global food supply chains
**Chair:** Peter Horne, Australian Centre for International Agricultural Research, Australia

- Identifying and managing new hazards in the food supply
  - Glenn Stanley, Food Standards Australia New Zealand, Australia
- Food authenticity and traceability using stable isotopes
  - James Carter, Queensland Health Forensic and Scientific Services, Australia
- Mycotoxins in the food supply chain and promising interventions
  - Mary Fletcher, The University of Queensland, Australia
- Rapid detection methods for food adulteration and authentication
  - Daniel Cozzolino, Central Queensland University, Australia
- Oritain - Proving origin, protecting reputations
  - Sandon Adams, Oritain Global Limited, Australia
- Molecular detection of toxoplasma gondii infection in small ruminants in Northwest Tunisia
  - Yosra Amdouni, National School of Veterinary Medicine of Sidi Thabet, Tunisia

### 2.5 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
  - Richard McLoughlin, Department of Agriculture and Water Resources, Australia
- Expanded agriculture in Northern Australia: The need for improved transport logistics
  - Andrew Higgins, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia
- Maximising the cost-effectiveness of water supply in northern Australia
  - Cuan Petheram, 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
  - Michael Bell, The University of Queensland, Australia
- Opportunities and constraints for irrigated agriculture in the Northern Territory
  - Mia Bristow, Northern Territory Department of Primary Industry and Fisheries, Australia
- Economic drivers of agricultural development in northern Australia
  - Ian Baker, North Australian Agribusiness Management, Australia

### 15:30 – 16:00 Afternoon tea

### 16:00 – 18:00 Concurrent symposium session 3

### 3.1 Drought Risk Management - connecting science and policy
**Chair:** Roger Stone, University of Southern Queensland, Australia

- Transitions and transformations-drought, hotspots, and adaptation
  - Roger Pulwarty, National Oceanic and Atmospheric Administration, USA
- Drought management and policy: Changing the paradigm from crisis to risk management
  - Emeritus Donald Wilhite, University of Nebraska, USA
- Benefits of action and costs of inaction: Drought mitigation and preparedness
  - Frederik Pischke, Integrated Drought Management Program, Switzerland
- Modes of climate variability and drought forecasting
  - 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
  - Mark Svoboda, US National Drought Mitigation Center, USA
- Improving drought monitoring and prediction science and services
  - Neil Plummer, Bureau of Meteorology, Australia
3.2 Remote sensing in agriculture and horticulture

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

Remote sensing applications for agricultural and horticultural crops: From the individual tree to whole of industry
Andrew Robson, University of New England, Australia

Mapping horticultural tree crops in Australia
Joel McKechnie, Department of Science, Information Technology and Innovation (DSITI), Australia

Intelligent sensing and information systems for tree crops
James Underwood, The University of Sydney, Australia

UAV imagery and its role in tactical agronomy trials
James McLean, The University of Queensland, Australia

Estimating regional scale crop production: An integrated climate, biophysical and remote sensing approach
Andries Potgieter, The University of Queensland, Australia

New frontiers in crop stress detection from satellites measurements of fluorescence, soil moisture, and canopy temperatures
Alfredo Huete, University of Technology, Sydney, Australia

3.3 Designing animal genomes for the tropics

Chair: Ben Hayes, The University of Queensland, Australia

Generating high quality de novo reference genome assemblies with minimal finishing
Derek Bickhart, US Department of Agriculture, USA

The genomic architecture of tick resistance
Mahlako Makgahlela, Agriculture Research Council, South Africa

Cutting and pasting: The future of genetic improvement for food animal genomes
Tad Sonstegard, Recombinetics, USA

The evolution of the Brahman genome - a crucial tropically adapted breed
Stephen Moore, The University of Queensland, Australia

Combining historical weather station records, climate change predictions and genomics to breed dairy cattle for future climates
Thuy Nguyen, Agriculture Research Victoria, Australia

Use of genomic technologies and composite cattle breeding within a large Northern Australian beef breeding enterprise
Sam Harburg, The North Australian Pastoral Company, Australia

3.4 Food: The key to health and wellbeing

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

Mediterranean diet in the tropics?
Lluís Serra Majem, University of Las Palmas de Gran Canaria, Canary Islands, Spain

Fatty Liver: It is not just about fat - Nutritional impact on non-alcoholic fatty liver disease (NAFLD)
Karmin O, University of Manitoba, Canada

Tropical fruits as functional foods for metabolic syndrome
Lindsay Brown, University of Southern Queensland, Australia

Gut microbiome - Our life partner, for better or worse?
Connie Woo, The University of Hong Kong, Hong Kong SAR

Berries for your renal health
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
Yasmina Sultanbawa, The University of Queensland, Australia

3.5 Managing climate risk and trade-offs in agriculture

Chair: Tom Davison, Managing Climate Variability Program, Australia

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

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

What do we want and what are we likely to get?
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
Lionel Page, Queensland University of Technology, Australia

Designing less risky systems through investing in the adaptive capacity of farmers
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 Reception and poster presentation evening
## Tuesday 21 November 2017

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>06:45 – 08:30</td>
<td>Rural Press Club Breakfast</td>
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<tr>
<td>08:30 – 09:15</td>
<td><strong>Keynote presentation</strong></td>
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<td><strong>Targeted plant breeding applications of CRISPR-Cas technology</strong></td>
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<td>Jerry Flint, Vice President, Industry Affairs and Regulatory, DuPont Pioneer, USA</td>
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<tr>
<td>09:15 – 10:00</td>
<td><strong>Keynote presentation</strong></td>
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<td><strong>The contributions of animal-source food to sustainable, safe, ethical and optimal human diets</strong></td>
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<td>Robyn Alders, Principal Research Fellow, Faculty of Veterinary Science, The University of Sydney, Australia</td>
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<tr>
<td>10:00 – 10:30</td>
<td><strong>Morning tea</strong></td>
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<tr>
<td>10:30 – 12:30</td>
<td><strong>Concurrent session symposium 4</strong></td>
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### 4.1 Accelerated data gathering for modern agriculture
#### AgFutures

**Chair:** Dave Swain, Central Queensland University, Australia

- **Beyond digital revolution - today’s research for tomorrow’s livestock tools**
  Meat and Livestock Australia, Australia

- **Using data to change tomorrow’s farm activities with power of prediction**
  James Rowe, Sheep CRC, Australia

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

- **The digital agronomist – the changing face of farm advisory**
  Tim Neale, Premia, Australia

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

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

### 4.2 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**
  Mark Cooper, Zenrun42, USA

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

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

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

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

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

### 4.3 Biofortification of horticultural crops for human health
#### Chair: Heather Smyth, The University of Queensland, Australia

- **Lessons from temperate crops for tropical crop biofortification**
  Roger Hellens, Queensland University of Technology, Australia

- **High folate strawberries - finally something tasty!**
  Michael Netzel, The University of Queensland, Australia

- **Sweetcorn biofortification - is a 1000% increase possible?**
  Tim O’Hare, The University of Queensland, Australia

- **High vitamin A bananas - a first for Africa**
  James Dale, Queensland University of Technology, Australia

- **Potential health benefits of breeding high flavonoid apples**
  Jonathan Hodgson, Edith Cowan University, Australia

- **Not another typical corny trial: Genetic and agronomic zinc biofortification of sweetcorn**
  Zhong Xiang Cheah, The University of Queensland, Australia
## Antimicrobial resistance and food animal production systems – global, regional and national perspectives

**Chair:** Pat Blackall, The University of Queensland, Australia

- **A global perspective on the responsible use of antimicrobials in veterinary medicine**
  Shabbir Simjee, Elanco Animal Health, UK
- **Antimicrobial resistance surveillance in livestock in Australia**
  Darren Trott, The University of Adelaide, Australia
- **Antimicrobial use and stewardship in animal health in Australia**
  Glenn Browning, The University of Melbourne, Australia

**Caeci Caecos Ducentes**
Pat Blackall, The University of Queensland, Australia

- **Antimicrobial resistance genes in Pseutrella multocida isolates from pigs in the Philippines**
  Denise Dayao, Department of Agriculture Regional Field Office III, Philippines
- **Molecular detection of tetracycline resistance genes in salmonella isolated from pork and poultry egg**
  Paula Blanca Gaban, Philippine Carabao Center, Philippines

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## 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**
  Ammar Abdul Aziz, The University of Queensland, Australia
- **Smallholder participation in palm oil value chains in Malaysia, Indonesia, and Thailand**
  Rob Cramb, The University of Queensland, Australia
- **Developing value chain linkages to improve smallholder cassava production in Southeast Asia**
  Dominic Smith, The University of Queensland, Australia
- **Small-holder participation in the China and Southeast Asia beef industry**
  Scott Waldron, The University of Queensland, Australia
- **How does participating in an inclusive global value chain, impact smallholder coffee producers in Indonesia?**
  Yanti Nuraeni Muflikh, The University of Queensland, Australia
- **Integrating small-scale vegetable farmers to better access high-end market in Dili: The case of Josephina Farms with contract farming**
  Vicente Correia, National University of Timor-Leste, Timor-Leste

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## Next Gen Scientist: What's your move?

**Chair:** Chris Proud, The University of Queensland, Australia

- **Welcome remarks**
  Tabare Abadie, DuPont Pioneer, USA
- **The developing of genotyping and its future**
  Robert Henry, The University of Queensland, Australia
- **Automated phenotyping and analytics**
  Michael Schaefer, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia
- **Statistical perspective in the era of big data**
  Alison Kelly, Queensland Department of Agriculture and Fisheries, Queensland Government, Australia
- **Phenotypic prediction augmented through crop model-whole genome prediction: Application to ARGOS8**
  Charlie Messina, DuPont Pioneer, USA
- **Biotechnologies and the future of plant improvement**
  Jimmy Botella, The University of Queensland, Australia

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

**Chair:** Ian O’Hara, Queensland University of Technology, Australia

- **Biofuutures – opportunities for agriculture in biobased fuels and bioproducts**
  Ian O’Hara, Queensland University of Technology, Australia
- **Discovery, evaluation and manufacture of new livestock feed supplements**
  Robert Speight, Queensland University of Technology, Australia
- **Biogas production from energy crops and agricultural residues**
  Prasad Kaparaju, Griffith University, Australia
- **Converting agricultural wastes into valuable products**
  Paul Jensen, The University of Queensland, Australia
- **Cellulose nanofibres from spinifex arid grasses: “Unique properties and applications under development”**
  Darren Martin, The University of Queensland, Australia
- **Brassica carinata: The sky is the limit**
  Anthony van Herwaarden, The University of Queensland, Australia
### 5.3 Tropical pulses rising to meet future demands

<table>
<thead>
<tr>
<th>Chair</th>
<th>Expected market opportunities and demand profiles for tropical pulses to 2022</th>
<th>Sustainability and profit drivers for tropical pulses in sustainable cropping systems</th>
<th>Breeding strategies unlock genetic potential of pulses</th>
<th>New genetic tools and solutions to make pulse crops more resilient to variable climates</th>
<th>Physiological mechanisms underpinning genotypic variation for heat tolerance in mungbean (<em>Vigna radiata</em> L.)</th>
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<tbody>
<tr>
<td>Rex Williams, Department of Agriculture and Fisheries, Queensland Government, Australia</td>
<td>Peter Wilson, AGT Foods Australia, Australia</td>
<td>Michael Bell, The University of Queensland, Australia</td>
<td>Poooran Gaur, Internal Crops Research Institute for the Semi-Arid Tropics, India</td>
<td>Sagadevan Mundree, Queensland University of Technology, Australia</td>
<td>Rao (RCN) Rachaputti, The University of Queensland, Australia</td>
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<td>The past is history: A case study of Queensland’s successful chickpea industry</td>
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<td>Merrill Ryan, Department of Agriculture and Fisheries, Australia</td>
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### 5.4 Profitable tropical and subtropical orchards

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<tr>
<th>Chairs</th>
<th>A research effort to improve subtropical and tropical tree crop productivity through intensification</th>
<th>Diurnal variation in the sensitivity of ‘Honey Gold’ mango fruit to developing under-skin browning</th>
<th>Pollination in macadamia</th>
<th>Breeding for adaptation during climate change: Hitting a moving target</th>
<th>Insights into the Avocado-Phytophthora Interaction</th>
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<tbody>
<tr>
<td>Bruce Topp and Jim Hanan, The University of Queensland, Australia</td>
<td>Joff Wilkie, Department of Agriculture and Fisheries, Queensland Government, Australia</td>
<td>Andrew Macnish, Department of Agriculture and Fisheries, Queensland Government, Australia</td>
<td>Brad Howlett, The New Zealand Institute for Plant and Food Research Ltd, New Zealand</td>
<td>José Chaparro, University of Florida, USA</td>
<td>Alice Hayward, The University of Queensland, Australia</td>
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<td>A new approach in oil palm harvesting improvement</td>
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<td>Wan Rusydiah W Rusik and Mohd Zulfahmi Mohd Yusoff, Sime Darby Plantation, Malaysia</td>
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</table>

### 5.5 Growing tropical aquaculture

<table>
<thead>
<tr>
<th>Chair</th>
<th>The tropical aquaculture powerhouse - global impacts and opportunities for Australia</th>
<th>The challenges of producing future sustainable aquafoods for tropical aquaculture</th>
<th>Making aquaculture sustainable in the tropics – growing algae to reduce nutrification and produce high-value products</th>
<th>Breeding for disease resistance in Australian shrimp: How do we get there?</th>
<th>The blacklip oyster – an alternative for tropical aquaculture in Australia?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dean Jerry, James Cook University, Australia</td>
<td>Nigel Preston, The University of Queensland, Australia</td>
<td>Richard Smullens, Ridley Agrifoods, Australia</td>
<td>Arnold Mangott, MBD Energy Limited, Australia</td>
<td>Tansyn Noble, James Cook University; Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia</td>
<td>Carmel McDougall, Griffith University, Australia</td>
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<td>In-vitro oocyte maturation by radial nerve extract and fertilization of the black sea cucumber holothuria leucospilota</td>
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<td>Chieu Hoang, University of the Sunshine Coast, Australia</td>
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### Concurrent session symposium 6

**6.1 Next Gen Scientist: What’s your move?**

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

<table>
<thead>
<tr>
<th>Chair</th>
<th>Captitilising your knowledge</th>
<th>Family and science - a work-life balance</th>
<th>Planning your career before and after graduation</th>
<th>Q&amp;A career progression in plant science</th>
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<tbody>
<tr>
<td>Xuemin Wang, The University of Queensland, Australia</td>
<td>Duncan Ferguson, The University of Queensland, UniQuest, Australia</td>
<td>Jaquie Mitchell, The University of Queensland, Australia</td>
<td>Sandra Dunckel, Longreach Plant Breeders, Australia</td>
<td>Vivienne Anthony, Syngenta Foundation for Sustainable Agriculture, Switzerland</td>
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<td>Facilitated by: Karen Graham, The University of Queensland, Australia</td>
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<td>Panelists: Dean Podlich, DuPont Pioneer, USA</td>
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<td>Christine Beveridge, The University of Queensland, Australia</td>
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<td>Greg Rebelzke, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia</td>
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</tbody>
</table>
6.2 Emerging trends and opportunities for engineering technologies in tropical agriculture

Chair: Craig Baillie, University of Southern Queensland, Australia

- Technologies and tools currently used to sense (proxy and remote sensing) canopies and plants
  Xavier Sirault, Australian Plant Phenomics Facility, Australia

- How would Google farm?
  Alex Thomasson, Texas A&M University, USA

- Autonomous adaptive precision irrigation for broad-acre agriculture
  Joseph Foley, University of Southern Queensland, Australia

- Seeking energy independence
  Bernadette McCabe, University of Southern Queensland, Australia

- Animal sensing will take the industry back 100 years
  Mark Trotter, Central Queensland University, Australia

Field Robotics in Agriculture
  Australian Centre for Field Robotics, University of Sydney, Australia

6.3 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
  Andy Pereira, University of Arkansas, USA

- Development of rice varieties for multi abiotic-stress tolerance in the Mekong region and Australia
  Shu Fukai, The University of Queensland, Australia

- Mapping, mining and tracking tools to locate and harness climate resilience in rice
  Tobias Kretzschmar, International Rice Research Institute, Philippines

- Climate-smart rice production for Australia and Asia
  Andrew Borrell, The University of Queensland, Australia

- Generating useful genetic variation in crops by induced mutation
  Apichart Vanavichit, Rice Science Center, Thailand

- Iron tolerance in rice
  Antonio Costa de Oliveira, Federal University of Pelotas, Brazil

6.4 Enhancing the efficiency of rumen fermentation in tropical systems

Chair: Dennis Poppi, The University of Queensland, Australia

- Microbial manipulation of rumen efficiency
  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
  Maree Bowen, Department of Agriculture and Fisheries, Australia

- The relationship of efficiency of microbial crude protein production with rumen microbial community structure in steers fed tropical pastures
  Karen Harper, The University of Queensland, Australia

- Changing the interplay between gut and host to improve production efficiency of ruminants
  Roger Hegarty, University of New England, Australia

- What is the actual role of rumen for supplemented grazing cattle?
  Edenio Detmann, Universidade Federal de Viçosa, Brazil

- Live yeast supplementation improves rumen fibre degradation in cattle grazing tropical pastures throughout the year
  Luis Felipe Prada e Silva, The University of Queensland, Australia

6.5 Regulatory oversight of plants and animals developed through new breeding innovations

Chair: TJ Higgins, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

- Regulation and advancing GM technologies
  Raj Bhula, Office of the Gene Technology Regulator, Australia

- Regulatory oversight of new breeding innovations in the US
  Alison Van Eenennaam, University of California, USA

- Regulatory oversight of new breeding innovations in Europe: A plant science perspective
  Thorben Sprink, Federal Research Centre for Cultivated Plants, Germany

- Regulation of new breeding innovations – implications for the grain trade
  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 TropAg2017 Research Partner VIP drinks
  Hosted by The University of Queensland (by invitation)

19:00 – 23:00 TropAg2017 conference dinner
### Keynote presentation

**08:30 – 09:15**

**The Mediterranean Diet: A healthy and traditional dietary pattern embedded in a sustainable food system**

Lluis Serra-Majem, University of Las Palmas de Gran Canaria, Canary Islands

### Keynote presentation

**09:15 – 10:00**

**The changing face of horticulture: Hello tomorrow!**

Neena Mitter, The University of Queensland, Australia

### Morning tea

**10:00 – 10:30**

### Concurrent symposium session 7

#### 7.1

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

Chair: Mike Pointon, Nufarm Ltd, Australia

Neena Mitter, The University of Queensland, Australia

- **Combining nanotechnology and molecular recognition for fertilizer applications**
  Maria DeRosa, Carleton University, Canada

- **Regulatory science and agricultural innovation: Where do we stand?**
  Phil Reeves, Australian Pesticides and Veterinary Medicines Authority, Australia

- **A nanobiotechnology approach to protect plants from abiotic stress**
  Juan Pablo Giraldo, University of California, USA

- **Nanopesticides: An emerging technological development**
  Rai Kookana, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

- **Nanoparticles for animal heathcare**
  Chengzhong (Michael) Yu, The University of Queensland, Australia

- **Topical application of dsRNA for plant protection against Bean common mosaic virus (BCMV)**
  Elizabeth Worrall, The University of Queensland, Australia

#### 7.2

**Sugarcane – constraints on production**

Chair: Frikkie Botha, Sugar Research Australia, Australia

- **Constraints on photosynthetic efficiency in C4 crops, with special references to sugarcane**
  Rowan Sage, University of Toronto, Canada

- **Licence to farm: Why nitrogen use efficiency matters and how we can achieve it in sugarcane**
  Susanne Schmidt, The University of Queensland, Australia

- **Control of sugar and fibre: Insights from the sugarcane transcriptome analyses**
  Prathima Perumal Thirugnanasambandam, The University of Queensland, Australia

- **Application of high-throughput phenomics for sugarcane trait development and variety improvement**
  Prakash Lakshmanan, Sugar Research Australia, Australia

- **Sensitivity and plasticity of sugarcane leaf metabolism during stress**
  Annelie Marquardt, Sugar Research Australia, Australia

- **Using genomic sequencing to understand the sugarcane genome structure**
  Karen Aitken, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia

#### 7.3

**The role of animal welfare in tropical animal production**

Chair: Alan Tilbrook, The University of Queensland, Australia

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

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

- **Proteomics to detect biomarkers of pain and inflammation in cattle**
  Priya Ghodasara, The University of Queensland, Australia

- **Cage row arrangement affects the performance of laying hens in the hot humid tropics**
  Siaka Diarra, The University of The South Pacific, Samoa

- **Applications of endocrine physiology concepts to evaluate stress and welfare of production livestock**
  Edward Narayan, Western Sydney University, Australia

- **Animal parasite diagnosis and characterisation by near-infrared spectroscopy: Future perspectives**
  Jill Fernandes, The University of Queensland, Australia
**7.4 Rice: Diverse and delicious**

**Chair:** Melissa Fitzgerald, The University of Queensland, Australia

- Research to improve the quality of rice grown in Tropical Australia
  Melissa Fitzgerald, The University of Queensland, Australia
- Starches in rice endosperm: Diversity and improvement
  Qiao-Quan Liu, Yangzhou University, China
- Opportunities and challenges of establishing a northern rice industry
  Russell Ford, Rice Research Australia, Australia
- Designing tropical rice for improved nutrition and palatability
  Robert Gilbert, The University of Queensland; Yangzhou University, Australia
- Australian wild rice: Diverse and tasty
  Ali Mohammad Moner, The University of Queensland, Australia
- New generation breeding strategies to improve rice varieties
  Ben Ovenden, NSW Department of Primary Industries, Australia

**7.5 Unlocking the potential of tropical crop diversity for future food security**

**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
  Sally Norton, Agriculture Victoria, Australia
- Drought proofing sorghum: Multiscale phenotyping and genotyping for nodal root angle
  Vijaya Singh, The University of Queensland, Australia
- Interoperable Infrastructure - a vision for DivSeek
  Robert Davey, Earlham Institute, UK
- Speed breeding to accelerate gene bank deposits into farmer fields
  Lee Hickey, The University of Queensland, Australia
- The genomics of rice genetic resources
  Robert Henry, The University of Queensland, Australia
- Unlocking genomic diversity without assembly or alignment
  Norman Warthmann, Australian National University, Australia

**12:30 – 13:30 Lunch and poster session**

**13:30 – 14:15 Keynote presentation**

- Approaches to tackling global crop production challenges
  Martin Kropff, International Maize and Wheat Improvement Center, México

**14:15 – 15:15 Closing panel**

**Chair:** Martin Kropff
**Panellists:** Iain Gordon, Derek Byerlee, Robyn Alders, Judith Kimiywe

**15:15 – 15:30 Closing Comments**

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