

# Program



5<sup>th</sup> International  
Controlled Environment  
Conference

AusPheno  
2016



SUNDAY, 18 <sup>th</sup> September 2016 (CSIRO Discovery Centre)	
17:00 – 20:00	Registration/Welcome/Mixer
MONDAY, 19 <sup>th</sup> September 2016 (CSIRO Discovery Centre)	
09:00 – 09:15	<b>Welcome: Tony Agostino</b> , Conference Chair (CSIRO) <b>Opening: Dr John Manners</b> (Director CSIRO Agriculture and Food, Australia)
09:15 – 10:00	<b>Keynote 1:</b> <b>Prof Ivan Baxter</b> (USDA-ARS/Danforth Centre, USA) <i>Time dependent genetic analysis links field and controlled environment phenotypes in the model C4 grass Setaria</i>
10:00 – 10:30	<b>Theme Talk 1:</b> <b>Dr Xavier Sirault</b> (Director, HRPPC, Australia) <i>Rapid end-to-end deployment of phenotyping capabilities: opportunities and challenges</i>
10:30 – 11:00	Morning tea
<b>Session 1:</b>	<b><i>Intersection between controlled environments and phenomics</i></b> (Chair, Prof Justin Borevitz, Australian National University)
11:00 – 11:30	<b>Dr Trevor Garnett</b> (The Plant Accelerator, Australia) <i>Improving NUE: A case for good phenomics</i>
11:30 – 12:00	<b>Dr Erik Van Oosterom</b> (QAAFI- University of Queensland, Australia) <i>Phenotyping transpiration efficiency: linking trait dissection to genetics</i>
12:00 – 12:30	<b>Henry Imberti</b> (Percival Scientific, USA) <i>ENVIRATRON—a plant research facility for a changing climate</i>
12:30 – 13:30	Lunch
13:30 – 14:00	<b>Theme Talk 2:</b> (Chair, Dr Xavier Sirault) <b>Dr Llorenç Cabrera-Bosquet</b> (INRA, France) <i>Extracting valuable traits from a plant phenotyping platform requires model-assisted dissection of the phenotype</i>
<b>Session 2:</b>	<b><i>Phenomics Facilities and Technologies</i></b> (Chair, Dr Xavier Sirault, HRPPC)
14:00 – 14:20	<b>Dr Jose Jimenez-Berni</b> (HRPPC, Australia) <i>Lightweight field phenotype platforms</i>
14:20 – 14:40	<b>Nick Hansen</b> (University of Adelaide, Australia) <i>Assessing nitrogen use efficiency and water stress interactions in wheat</i>
14:40 – 15:00	<b>Dr Peter Kuffner</b> (HRPPC, Australia) <i>Australia: Cropatron imaging in glasshouse</i>
15:00 – 15:30	Afternoon tea
15:30 – 16:00	<b>Theme Talk 3:</b> (Chair, Dr Trevor Garnett, The Plant Accelerator) <b>Dr Jeremy Harbinson</b> (Wageningen University, Holland) <i>The high-throughput phenotyping and genetics of photosynthetic traits</i>
<b>Session 3:</b>	<b><i>Sensing systems and image-analysis</i></b> (Chair, Dr Trevor Garnett, The Plant Accelerator)
16:00 – 16:30	<b>Dr Sruti Das Choudhury</b> (University of Nebraska-Lincoln, USA) <i>Holistic and Component-based Automated Plant Phenotyping Analysis using Visible-Light Images</i>
16:30 – 17:00	<b>Keach Murakami</b> (The University of Tokyo, Japan) <i>Non-destructive estimation of light energy distribution between photosystems</i>
17:00 – 17:30	<b>Sarah Nemin</b> (Australian National University, Australia) <i>Australia Deep learning for phenotype-genotype classification</i>
	Break
18:30	<b>BBQ Dinner</b> (University House, Australian National University) <b>Launch of Plant Phenomics Australia</b>

TUESDAY, 20 <sup>th</sup> September 2016 (CSIRO Discovery Centre)	
09:00 – 09:05	<b>Housekeeping: Dr Bettina Berger</b> , Chair (The Plant Accelerator)
	<b><i>International Plant Phenomics Network</i></b>
09:05 – 09:50	<b>Keynote 2:</b> <b>Dr Michaël Chelle</b> (INRA, France) <i>May light phylloclimate help phenotyping?</i>
09:50 – 10:35	<b>Keynote 3:</b> <b>Dr Hendrik Poorter</b> (Plant Sciences, IBG2, Germany) <i>Genes, phenes and machines: as well as ways to bridge the gap between lab and field</i>
10:35 – 11:00	Morning tea
<b>Session 4:</b>	<b><i>Current Research in Controlled Environments and Phenomics</i></b> (Chair, Dr Tim Brown, Australian National University)
11:00 – 11:30	<b>Theme Talk 4:</b> <b>Prof Iain Young</b> (University of Sydney, Australia) <i>Designing soils</i>
11:30 – 12:00	<b>Dr Stefan Gerth</b> (Fraunhofer Development, Center For X-ray Technology, Germany) <i>Root growth analysis using X-ray Computed Tomography in controlled environments</i>
12:00 – 12:30	<b>Dr Bettina Berger</b> (Australian Plant Phenomics Facility- The Plant Accelerator, Australia) <i>Zegami - a new tool for visualizing phenotypic data sets</i>
12:30 – 13:15	Lunch
<b>Session 5:</b>	<b><i>Current Research in Controlled Environments and Phenomics (continued)</i></b> (Chair, Dr Richard James, CSIRO)
13:15 – 13:45	<b>Dr Surya Kant</b> (Agriculture Victoria, Australia) <i>Automated phenotyping for improved nitrogen use efficiency in wheat</i>
13:45 – 14:15	<b>Dr Vijaya Singh</b> (The University Of Queensland, Australia) <i>High-throughput phenotyping platform for nodal root angle in sorghum</i>
14:15 – 14:45	<b>Dr Toshio Shibuya</b> (Osaka Prefecture University, Japan) <i>Light competition within dense plant stands under different light qualities</i>
14:45 – 15:00	Afternoon tea
<b>Session 6:</b>	<b><i>Field Phenotyping</i></b> (Chair, Jose Jimenez-Berni, HRPPC)
15:00 – 15:30	<b>Theme Talk 5:</b> <b>Prof Graeme Hammer</b> (University of Queensland, Australia) and <b>Dr Scott Chapman</b> (CSIRO, Australia) <i>Model-Assisted Targeting of Phenotyping Platforms</i>
15:30 – 16:00	<b>Dr Robert Coe</b> (International Rice Research Institute, Philippines) <i>High resolution field phenotyping: exploiting rice genetic diversity</i>
16:00 – 16:30	<b>Dr Pieter Badenhorst</b> (Dept of Economic Development, Jobs, Transport & Resources, Australia) <i>The development of a field-based forage phenomics platform</i>
16:30 – 17:00	<b>Dr Andries Potgieter</b> (University of Queensland, Australia) <i>Field phenotyping of sorghum breeding plots through proximal sensing</i>
	Break
17:30 – 18:30	<b>UKCEUG/ NCERA-101 Business Meetings</b> (University House, Australian National University)
	Break
19:30	<b>Conference Dinner</b> (University House, Australian National University)



WEDNESDAY, 21 <sup>st</sup> September 2016 (CSIRO Discovery Centre)	
09:00 – 09:10	<b>Housekeeping: Dr Dennis Greer</b> , Chair (Charles Sturt University)
09:10 – 10:00	<b>Keynote Speaker 4:</b> <b>Prof Bruce Bugbee</b> (Utah State University, USA) <i>Turning photons into food: A global analysis of energy inputs to farming without sunlight</i>
10:00 – 10:30	<b>Theme Talk 6:</b> <b>Assoc Prof Mark Lefsrud</b> (McGill University, Canada) <i>Pushing the limits of urban agriculture</i>
10:30 – 11:00	<b>Morning tea</b>
<b>Session 7:</b>	<b>CE's and Phenomics: new horizons</b> (Chair, Mark Romer, McGill University)
11:00 – 11:30	<b>Dr Tim Brown</b> (Australian National University, Australia) <i>TraitCapture: NextGen Software and Hardware for Scaling from Seeds to Traits to Ecosystems</i>
11:30 – 12:00	<b>Dr Klara Panzarova</b> (Photon Systems Instrument, Czech Republic) <i>Identification of traits contributing to salinity tolerance in Arabidopsis thaliana</i>
12:00 – 12:30	<b>Prof Kamal Alameh</b> (Edith Cowen University, Australia) <i>Semi-transparent photovoltaic glass (STPVG) greenhouses for protected cropping</i>
12:30 – 13:30	<b>Lunch</b>
13:30 – 14:00	<b>Theme Talk 8:</b> (Chair, Dr Sergio Moroni, Charles Sturt University) <b>Prof Erik Runkle</b> (Michigan State University, USA) <i>Adding far-red radiation to sole-source lighting for specialty crops</i>
<b>Session 8:</b>	<b>Advances in LED Lighting: Technologies and Applications</b> (Chair, Dr Sergio Moroni, Charles Sturt University)
14:00 – 14:30	<b>Dr Alexander Ivakov</b> (ARC CoE Translational Photosynthesis, Australian National University) <i>Genetic mapping of high-dimensional phenotypes</i>
14:30 – 15:00	<b>Dr Matthew Mickens (NASA Kennedy Space Center, USA)</b> <i>Supplemental LED effects on growth and phytonutrients of 'Outredgeous' lettuce</i>
15:00 – 15:30	<b>Jason Lanoue</b> (University Of Guelph, Canada) <i>Optimizing LED spectra for photosynthesis, C-partitioning and export in greenhouses</i>
15:30 – 16:00	<b>Afternoon tea</b>
<b>Session 9:</b>	<b>Controlled Environments: temperature, CO<sub>2</sub>, humidity, air circulation and plant responses</b> (Chair, Prof Chieri Kubota, University of Arizona)
16:00 – 16:30	<b>Sarah Mills</b> (West Virginia University, USA) <i>Effect of CO<sub>2</sub>, temperature, and water deficit on Petunia flowering</i>
16:30 – 17:00	<b>Dr A J Both</b> (Rutgers University, USA) <i>Comparing key light ratios for plant growth and development</i>
17:00 – 17:30	<b>Dr Dennis Greer</b> (Charles Sturt University, Australia) <i>The temperature response of dry matter and sugar accumulation in grapevine berries.</i>
	<b>Break</b>
18:30	<b>Public Seminar – Shine Dome.</b> Sponsored by the Australian Academy of Science <b>Dr Gioia Massa</b> (NASA), <b>Dr Ray Wheeler</b> (NASA), <b>Dr Cary Mitchell</b> (Purdue University) <i>Growing Plants on the International Space Station</i>



THURSDAY, 22 <sup>nd</sup> September 2016 (CSIRO Discovery Centre)	
09:00 – 09:10	<b>Housekeeping: Stephen Andrews</b> , Chair (University of Cambridge)
09:10 – 10:00	<b>Keynote Speaker 5:</b> <b>Prof Jennifer M<sup>c</sup>Elwain</b> (University College Dublin, Ireland) <i>Extreme palaeo-atmosphere experiments on living fossil plants in controlled environment chambers</i>
10:00 – 10:30	<b>Theme Talk 9:</b> <b>Prof Justin Borevitz</b> (Australian National University, Australia) <i>Genomic and Environmental Dissection of Complex Plant Traits</i>
10:30 – 11:00	<b>Morning tea</b>
<b>Session 10:</b>	<b>Controlled Environments: novel applications</b> (Chair, Prof Bob Furbank, Australian National University)
11:00 – 11:30	<b>Dr Mathew Lewsey</b> (La Trobe University, Australia) <i>Searching for the regulatory processes underlying plant growth traits by integrative analyses of 'omics data</i>
11:30 – 12:00	<b>Reg Quiring</b> (Conviron, Canada) <i>Considerations for plant growth cabinets with special atmospheres, lighting and extreme ranges of operation</i>
12:00 – 12:30	<b>Dr Gary Stutte</b> (Kennedy Space Center, USA) <i>Maintaining relationships in closed environments: plant/microbe mutualisms</i>
12:30 – 13:15	<b>Lunch</b>
<b>Session 11:</b>	<b>Controlled Environments: (talks continued)</b> (Chair, Gary Stutte, Kennedy Space Center)
13:15 – 13:45	<b>Dr Kale Harbick</b> (Cornell University, USA) <i>Energy consumption in controlled environments: supplemental lighting and CO<sub>2</sub> systems</i>
13:45 – 14:15	<b>Ms Joan Leonard</b> (Ohio State University, USA) <i>Integration of Management Tools for Controlled Environment Research Facilities</i>
14:15 – 14:45	<b>Dr Roberto Lopez</b> (Michigan State University, USA) <i>Comparing supplemental and sole-source lighting for bedding plant seedling production</i>
14:45 – 15:10	<b>Conference Summing up &amp; Close</b> <b>Prof Bob Furbank</b> (Australian National University, Australia)
15:10 – 15:30	<b>Afternoon tea</b>
15:30	<b>Depart for Kioloa, NSW South Coast</b>

