

Full program

Monday 5 October 2015

1.00 pm – 4.00 pm	Registration	Foyer
3.30 pm – 4.30 pm	ISRR Committee meeting	Boardroom, Hotel Realm
5.30 pm – 7.30 pm	WELCOME RECEPTION Roots down under—or on top? John Passioura	National Gallery of Australia Sponsors: Functional Plant Biology/CSIRO Publishing

Tuesday 6 October 2015

8.00 am	Registration open	Foyer
8.30 am – 8.55 am	Symposium opening: John Manners, CSIRO; James Clark, GRDC	Ballroom 3-4
8.55 am – 10.15 am	PLENARY SESSION 1 Roots responding to climate change SPONSOR: Bayer Crop Science Chairs: Michelle Watt, Kenny Png and Hallie Thompson Keynote O1 Belowground biotic interactions and ecosystem responses to climate change — Richard Bardgett Keynote O2 Root turnover and climate change— David Eissenstat	Ballroom 3-4
10.15 am – 10.45 am	MORNING TEA	Foyer
10.45 am – 12.25 pm	CONCURRENT SESSION 1 1A—Deep roots and root turnover Chairs: Tim Colmer and Cathrine Ingvorsen Ballroom 3-4 Keynote O3 Deep roots and their functions in ecosystems — Alain Pierret O-01 Can the buffering effect of plant diversity through belowground functional complementarity be observed after a severe drought in grassland mixtures?— Catherine Picon-Cochard O-02 Linking rooting depth and fine root turnover to soil organic carbon stocks in a Mediterranean agroforestry system— Remi Cardinael O-03 Vertical abundance of beech fine roots and their impact on topsoil and subsoil SOM in deep profiles of six mature <i>Fagus sylvatica</i> forests in Northern Germany — Kristina Kirfel O-04 Deep belowground biomass and net primary productivity of coffee (<i>Coffea arabica</i> L.) in an agroforestry system of Costa Rica— Christophe Jourdan	1B—Root microbiome interactions Chairs: Uli Mathesius and Alberto Casartelli Ballroom 2 Keynote O4 The rhizosphere microbiome and plant health — Peter Bakker O-05 The root microbiome of <i>Brachypodium distachyon</i> Bd21-3 and its effects on root exudates— Akitomo Kawasaki O-06 Vertical distribution of microbes and nematodes in subsurface soils in Australian woodland: a rhizosphere perspective— Barbara Drigo O-07 Root growth or resistance: <i>Rhizoctonia solani</i> AG8 inoculum build-up varies between crops and cereal varieties— Gupta Vadakattu O-08 Cultivar specific rhizosphere traits in wheat roots — Patricia Okubara
12.30 pm – 1.30 pm	LUNCH	Foyer
1.30 pm – 3.15 pm	Poster Session 1 (Presenters—odd numbered posters)	High Courtyard
3.15 pm – 3.45 pm	AFTERNOON TEA	Foyer

3.45 pm – 5.10 pm	CONCURRENT SESSION 2	
	<p>2A—Root water relations</p> <p>Chairs: Annie DesRochers and Stefan Hey</p> <p>Ballroom 3-4</p> <p>Keynote 05 Rhizosphere processes affecting root water uptake: a review/point of view—Andrea Carminati</p> <p>O-09 Water uptake of main root segments in a multiple compartment root container—Dagmar van Dusschoten</p> <p>O-10 Long-term irrigation affects root growth and decomposition in a drought stressed Alpine Scots pine forest—Claude Herzog</p> <p>O-11 Diurnal patterns of roots growth in grapevines—Kare Maihemuti</p>	<p>2B—Root endophytes</p> <p>Chairs: Hans Lambers and Daniel Sarabia-Lopez</p> <p>Ballroom 2</p> <p>Keynote 06 The (unacknowledged) importance of randomness during fungal community assembly—Jeff Powell</p> <p>O-12 Complementary shifts in root-mycorrhizal networks and rhizobiome drive ecosystem adaptation in changing climate: experiments and gradient studies from northern forests—Ivika Ostonen</p> <p>O-13 Endophytic <i>Trichoderma virens</i>: a close interaction with its host plant roots—Guillermo Nogueira Lopez</p> <p>O-14 Drying up belowground: the role of root associated organisms in plant tolerance to the climate change drought—Alison Bennett</p>
5.15 pm – 5.55 pm	<p>PLENARY SESSION 2 Roots and drought tolerance SPONSOR: Journal of Experimental Botany</p>	
	<p>Chairs: Alan Richardson and Emi Kameoka</p> <p>Ballroom 3-4</p> <p>Keynote 07 Roots and crop adaptation to drought: moving forward from selection for deep roots—Amelia Henry</p>	
6.00 pm	NETWORKING DRINKS	

Wednesday 7 October 2015

8.00 am	Registration open	Foyer	
8.30 am – 9.10 am	PLENARY SESSION 3 Genetics and functions of root hairs SPONSOR: Grains Research and Development Corporation Chairs: Peter Ryan, Jessica Mowle and Danny Dwi Saputra Keynote 08 Development and evolution of land plant rooting systems: rhizoids to root hairs — Liam Dolan	Ballroom 3-4	
9.15 am – 10.15 am	CONCURRENT SESSION 3 3A—Genetics and functions of root hairs Chairs: Peter Ryan, Jessica Mowle and Danny Dwi Saputra Ballroom 3-4 O-15 Class 1 ARF-GAPs: regulatory hubs that link phosphoinositide signaling and the cytoskeleton in specifying root hair polarity— Elison Blancaflor O-16 The genetics of rhizosheath size in a multiparent mapping population of wheat— Manny Delhaize O-17 Understanding the biophysical formation and genetic control of the rhizosheath— Timothy George O-18 Field evaluation of a 4H QTL for root rhizosheath weight in barley— Xue Gong	3B—Cell biology and water uptake Chairs: Leslie Weston and Stephen Slack Ballroom 2 O-19 Root growth under water deficit: ferulate crosslinks as restraints to cell wall extension— Hallie Thompson O-20 Characterisation of a quantitative trait locus for increasing hydraulic conductance of rice— Tadashi Hirasawa O-21 Root cortical senescence influences root radial water uptake in barley— Hannah Schneider O-22 Characterisation of 'drought rhizogenesis' in rapeseed (<i>Brassica napus</i>): an exceptional drought tolerance mechanism— Juan Sergio Moroni	
10.15 am – 10.45 am	MORNING TEA	Foyer	
10.45 am – 12.25 pm	CONCURRENT SESSION 4 4A—Root phenotyping and breeding targets Chairs: Anton Wasson and Christina Clarke Ballroom 3-4 Keynote 09 Rice root traits for enhanced nutrient capture: phenotyping techniques and their potential for successful breeding outcomes— Matthias Wissuwa O-23 Recent development in root phenotyping pipelines of cereal crops: transparent soil and rhizotubes— Tracy Valentine O-24 Root phenotyping of temperate cereals—a high throughput phenotyping pipeline for field experiments— Tobias Wojciechowski O-25 Root phenotyping under semi-field conditions—understanding root growth and distribution— Dorte Bodin Dresbøll O-26 Identifying critical root length density targets for effective subsoil water use by wheat— John Kirkegaard	4B—Membrane function and root signalling Chairs: Manny Delhaize and Isaiah Pabuayon Ballroom 2 Keynote 10 A co-operated transport system for mineral element uptake in rice roots— Jian Feng Ma O-27 Cell-specific effects of oxygen availability and salinity on ion concentrations in adventitious roots of barley— Tim Colmer O-28 Identifying novel salinity tolerance mechanisms by spatial analysis of lipids in barley roots— Ute Roessner O-29 Sodium sequestration and salinity stress signalling in wheat roots— Sergey Shabala O-30 The <i>Arabidopsis</i> nitrate transceptor NRT1.1/NPF6.3 that governs distinct signaling pathways is subjected to a complex post transcriptional regulation— Philippe Nacry	
12.30 pm – 1.30 pm	LUNCH	Foyer	
1.30 pm – 6.00 pm	Mid-Symposium Tours Tidbinbilla Nature Reserve Houses of Parliament/Australian War Memorial and Floriade Cool Climate Wines National Botanic Gardens and Floriade Ginninderra Experiment Field Station		
6.00 pm – 7.00 pm	ISRR General Meeting	Ballroom 3-4	

Thursday 8 October 2015

8.00 am	Registration open	Foyer
8.30 am – 9.10 am	PLENARY SESSION 4 Root architecture and plant nutrition	Ballroom 3-4
	SPONSOR: Meat and Livestock Australia Chairs: Richard Simpson, Florencia de Marotte and Sida Tesfaye Shiferaw Keynote 11 Improving nitrogen and phosphorus efficiency through modifying root architecture and nodulation in soybean— Hong Liao	
9.15 am – 10.15 am	CONCURRENT SESSION 5 5A—Root architecture and plant nutrition	5B—Root modelling and image analysis
	Chairs: Richard Simpson, Florencia de Marotte and Sida Tesfaye Shiferaw Ballroom 3-4	Chairs: Glyn Bengough and Mutez Ahmed Ballroom 2
	O-31 Understanding the response of maize root system to low-nitrogen stress— Guohua Mi	O-35 Density-based approaches to interface models and data in root biology— Dimitris Kalogiros
	O-32 Root plasticity of wheat (<i>Triticum aestivum</i> L.) in phosphorus enriched bands— Sheikh Rabbi	O-36 Quantification of three-dimensional root system traits for multiple interacting plants from X-ray micro computed tomography data— Stefan Mairhofer
	O-33 Root responses to nutrient patches—trade-offs and constraints— Eric Visser	O-37 Modest experimental technique for root system architecture study— Willibald Loiskandl
	O-34 The effects of zinc deficiency on root development in rice— Amrit Kaur Nanda	O-38 A novel root phenotyping method using hyperspectral imaging— Gernot Bodner
10.15 am – 10.45 am	MORNING TEA	Foyer
10.45 am – 12.25 pm	CONCURRENT SESSION 6 6A—Root adaptation to nutrient stress	SPONSOR: Meat and Livestock Australia 6B—Root processes for nutrients and competition
	Chairs: Jim Crush and Bonnie Flohr Ballroom 3-4	Chairs: Jack Christopher and Iti Rathi Ballroom 2
	Keynote 12 Root adaptations to soils with low fertility and toxicities— Idupulapati Rao	Keynote 13 Bioactive root exudates and rhizosphere interactions—localisation, biosynthesis and accumulation of plant secondary metabolites— Leslie Weston
	O-39 Length does not always matter—root traits and rhizosphere attributes determining phosphorus acquisition efficiency in field-grown maize genotypes— Philippe Hinsinger	O-43 Host genotype dependent responses for nodulation and root growth as influenced by bradyrhizobial inoculation— Kannepalli Annapurna
	O-40 Surface area of root hair cylinder: a major factor in P uptake and the critical P requirement of pasture legumes— Rebecca Haling	O-44 Genes controlling root nodule numbers in legumes modulate root phenotypic plasticity and fitness in response to nitrogen availability— Giel van Noorden
	O-41 Genetic control and influence of wheat rhizosheath size on acid soils— Richard James	O-45 Relationship between water, nutrient and fertiliser use efficiency of wheat genotypes and root structure— Paola E Corneo
	O-42 Mineral nutrition in <i>Campos rupestres</i> species— Anna Abrahao	O-46 A dynamic phenotype analysis of root response to nutrient and neighbour sensing in maize— Christopher Topp
12.30 pm – 1.30 pm	LUNCH	Foyer
1.30 pm – 3.15 pm	Poster Session 2 (Presenters—Even numbered posters)	High Courtyard
3.15 pm – 3.45 pm	AFTERNOON TEA	Foyer

3.45 pm – 5.10 pm	CONCURRENT SESSION 7	
	<p>7A—Regulation of root architecture and rootstocks</p> <p>Chairs: Bob Sharp and Jie Liu</p> <p>Ballroom 3-4</p> <p>Keynote 14 Developmental and functional responses of rice root system to soil water and nutrient conditions —Yoshiaki Inukai</p> <p>O-47 Root and shoot coordination: programmable and self-organised architectural development of ryegrass —AJ Escobar-Gutierrez</p> <p>O-48 Root clonal networks preserve genetic diversity in <i>Populus tremuloides</i> stands of eastern Canada —DesRochers</p> <p>O-49 Reciprocal grafts of M.9, M.116 and M.27 apple rootstocks demonstrate that the scion affects root system architecture and dry-matter distribution —Peter Gregory</p>	<p>7B—Root systems and water use</p> <p>Chairs: Vincent Chochois and Cecile Richard</p> <p>Ballroom 2</p> <p>Keynote 15 Farming systems context drives the value of deep roots in Australia—Julianne Lilley</p> <p>O-50 The response of root turnover and longevity in field-grown grapevines to deficit irrigation or reduced winter rainfall—Everard Edwards</p> <p>O-51 Deeper root systems in wheat grown in rainfed, temperate conditions: relationships with yield, canopy temperature and water use—Alan Severini</p> <p>O-52 Measurements of water uptake of maize roots: insights for breeders—Mutez Ahmed</p>
6.30 pm – 11.30 pm	<p>SYMPOSIUM DINNER</p> <p>Speaker: Dr Tony Fischer</p> <p style="text-align: right;">National Arboretum Sponsor: The Crawford Fund</p>	

Friday 9 October 2015

8.00 am	Registration open	Foyer
8.30 am – 9.10 am	PLENARY SESSION 5 Root genetics and breeding SPONSOR: Annals of Botany Chairs: Greg Rebetzke, Celine Pradier and Dominik Skoneczny Keynote 16 Uncovering key genes and networks regulating root growth using systems genetics — Wolfgang Busch	Ballroom 3-4
9.15 am – 10.15 am	CONCURRENT SESSION 8 8A—Root genetics and breeding Chairs: Greg Rebetzke, Celine Pradier and Dominik Skoneczny Ballroom 3-4 O-53 High throughput root screens are a proxy for field performance in <i>Brassica napus</i> and can be used to identify novel genetic loci— Cathy Thomas O-54 A major QTL for narrow root angle provides yield advantage in barley— Hannah Robinson O-55 Genetic control of nodal root angle in sorghum and its implications on drought adaptation— Vijaya Singh O-56 Speed-breeding combined with rapid phenotyping to improve root adaptation to water-limited environments— Cecile Richard	8B—Root exudation and soil interactions Chairs: Philippe Hinsinger and Ritika Chowdhary Ballroom 2 O-57 Complementarity for soil phosphorus acquisition by intercropped barley and legume varieties with contrasting root biochemical and physiological responses to P deficiency— Courtney Giles O-58 Effects of trophic relationships, soil type and P source (phytate versus mineral P) on root development and architecture of <i>Pinus pinaster</i> seedlings — Claude Plassard O-59 Barley genotype-specific variations in root carbon deposition and soil organic matter mineralisation — Lumbani Mwafurirwa O-60 Detection of biological nitrification inhibition in canola: implications for N cycling and soil fertility in rotational cropping— Cathryn O'Sullivan
10.15 am – 10.45 am	MORNING TEA	Foyer
10.45 am – 12.25 pm	CONCURRENT SESSION 9 9A—Roots and farming systems Chairs: Mark Peoples and Anna Abrahao Ballroom 3-4 Keynote 17 Root system-based limits to agricultural productivity and efficiency—the farming systems context — Kristian Thorup-Kristensen O-61 High plasticity of wheat roots to soil N and water availability is conducive to higher competitive ability of wheat than maize in intercropping systems — Long Li O-62 Reduced crown root number improves water acquisition under water deficit stress in maize — Yingzhi Gao O-63 High-throughput, direct phenotyping of wheat roots in the field— Anton Wasson O-64 Searching the roots: breeding phosphorus efficient sorghum for West Africa— Willmar Leiser	9B—Root development and growth Chairs: Everard Edwards and Sabrina Chin Ballroom 2 Keynote 18 Systems analysis of roots: bridging molecular, rhizosphere and field scales— Larry York O-65 To be and not to be maintained: two different developmental programs for the root apical meristem — Joseph Dubrovsky O-66 Arginine methylation of plant proteins, its role in shaping root architecture and in negotiating the interaction with mycorrhizal fungi— Jonathan Plett O-67 Root bark percentage in apple roots is correlated with rootstock-induced dwarfing of apple scions — Nicola Harrison O-68 Quantifying effects of internal structures on root biomechanics using laser ablation— Kenneth Loades
12.30 pm – 1.30 pm	LUNCH	Foyer

1.30 pm – 2.50 pm	PLENARY SESSION 6 Roots for the future	Ballroom 3-4 SPONSOR: Plant and Soil
	Chairs: John Kirkegaard, Hallie Thompson and Kenny Png	
1.30 pm – 2.10 pm	Student Forum	
2.10 pm – 2.50 pm	Keynote 19 Root science for future food security—meeting the challenge in China — Jianhua Zhang	
2.50 pm – 3.10 pm	Symposium close	
3.15 pm	AFTERNOON DRINKS	Foyer