



Plant Science Central Conference

4-6 July 2023, Ag/Hort Lecture Block, Massey University, Palmerston North, New Zealand

Tuesday 4th July 2023 NB Parallel Sessions in AH1, AH2		
09:30 onwards	Registration/morning tea in foyer	
10:15 – 10:25	Welcome	Julian Heyes, Lynette Brownfield, Maree Debenham
10:25-10:45	Opening address	Mark Piper, CEO P&FR
Session 0	AH1 Forage Biotechnology	Chair: Kim Richardson
10:45 - 11:30	AgResearch Plenary: Exploring High Metabolizable Energy (HME) ryegrass through two lenses: evolutionary biology and plant biotechnology	Nick Roberts
11:30 –11:45	Towards F1 hybrid breeding for ryegrass: dealing with self-incompatibility	Lynette Brownfield
11:45 - 12:00	Dissection of the epoxyanthitrem pathway in <i>Epichloë</i> sp. LpTG-3 strain AR37 by CRISPR gene editing	Richard Johnson
12:00 – 12:15	The development of designed endophyte pasture mixtures for improved animal health outcomes	Colin Eady
12:15 – 12:30	Genetically modified crops and forages – New Zealand increasingly out of step	John Caradus
12:30 - 13:30	Lunch	
Session 1	AH2 Plant Architecture	Chair:
11:30 –11:45	Light distribution pattern in relation to fruit quality traits in planar cordon apple trees	Hassan Saei
11:45 - 12:00	Modelling canopy PAR interception in micro-irrigated citrus orchards based on tree spacing, canopy geometry, and row orientation	Francisco Rojo
12:00 – 12:15	Development of a planar cordon apple tree model in GroIMP	Xiumei Yang
12:15 – 12:30	<i>A Medicago truncatula</i> line that persistently fixes nitrogen in response to nitrogen fertiliser	Rama Dhanuskodi
12:30 - 13:30	Lunch	
	AH1 Plenary	Chair: Lynette Brownfield
13:30 – 14:00	Annals of Botany Address: Gene editing of duplicated <i>SOC1</i> genes in <i>Medicago</i> reveals roles in architecture and flowering	Jo Putterill
Session 2	AH1 Breeding Technologies	Chair:
14:00 – 14:15	Decoding the drivers of apomixis – An investigation into the <i>LOP</i> locus of <i>Pilosella piloselloides</i>	Beatrice Fulton
14:15 – 14:30	Improving Sauvignon Blanc grapevine through the integration of distinctive traits using somaclonal variation for adaptability to environment and biosecurity challenges	Bhanupratap Vanga
14:30 – 14:45	Fast-track breeding of yellow-fleshed apple using the early flowering approach	Charles Dwamena

14:45 – 15:00	Post-WGD changes in neo-allopolyploids	Usama Mukhtar
15:00 – 15:30	Afternoon Tea	
Session 3	AH2 Signalling and Development	Chair: Chris Carrie
14:00 – 14:15	Understanding peptide hormone signalling: a functional analysis of plant peptide-receptor interactions	Sarah Jessup
14:15 – 14:30	Natural variation in <i>Medicago truncatula</i> suggests independent regulation of symbiotic nodule development and nitrogen fixation in fertilised soil	Greg Dawson
14:30 – 15:00	Ubiquitin-mediated developmental regulation in plant development	Peter Mace
15:00 – 15:30	Afternoon Tea	
Session OP1	AH1 Oral Posters	Chair:
15:30 – 17:00	3 min Poster Presentations	
17:00 – 18:00	Foyer: Poster session with drinks and nibbles	
18:00 -	Free time; NZSPB: dinner in town	

Wednesday 5th July 2023 NB Parallel Sessions in AH1, AH2

Session 4	AH1 Floral Development	Chair: David Lewis
09:00 – 09:45	IAPB Plenary: Flowers on time, by design: understanding and harnessing flower development in fruit crops	Erika Varkonyi-Gasic
09:45 – 10:00	<i>CRISPR/Cas9</i> -mediated targeted mutagenesis of <i>MtFTb1</i> and <i>MtFTb2</i> delays photoperiod-dependent flowering time in <i>Medicago truncatula</i>	Soledad Perez Santangelo
10:00 – 10:15	Environmental effects on flowering phenology and nectar production of mānuka (<i>Leptospermum scoparium</i>)	Mike Clearwater
10:15 – 10:30	Investigation into the transcriptional regulation of stigma death in <i>Actinidia chinensis</i>	Olivia Kelly
10:30 – 11:00	Morning tea	
Session 5	AH2 Postharvest A	Chair: Li Mo
09:45 – 10:00	Fruit texture assessment and interpretation in ‘Hass’ avocado	Jeremy Burdon
10:00 – 10:15	Exploration of fruit parameters for non-destructive identification of calyx cavity in ‘Fuyu’ persimmon (<i>Diospyros kaki</i> L.)	Josephine Longuet-Higgins
10:15 – 10:30	From orchard to storage: Predicting fruit longevity through advanced quality measurements	Nicolette Niemann
10:30 – 11:00	Morning tea	
Session 6	AH1 Floral and Vegetative Bud Development	Chair:
11:00 – 11:15	Michael McManus Award: CRISPR-Cas9-mediated mutagenesis of kiwifruit <i>BFT</i> genes results in an evergrowing but not early flowering phenotype	Dinum Herath
11:15 – 11:30	Understanding branch fruit set behaviour in two-dimensional planar cordon apple trees with vertical branch orientations	Adam Friend
11:30 – 11:45	Artificial spur extinction of sweet cherry and the relationship to fruit set and canopy light transmission	Michelle Schurmann

11:45 – 12:00	Identifying pollenisers and understanding fruit set physiology of ‘PremP009’, a new interspecific pear	Jess Bryne
12:00 – 12:15	Developing germplasm resources and genomic tools for a non-heading perennial ryegrass	Ayodele Fakoya
12:15 – 12:30	The role of <i>DET1</i> in the regulation of plant photomorphogenesis	Brittany Drummond
12:30 – 13:30	Lunch	
Session 7	AH2 Postharvest B	Chair: Jeremy Burdon
11:00 – 11:15	Identification of maturity biomarkers predicting storage performance of yellow-fleshed kiwifruit using integrated multi-omics analysis	Laurie Favre
11:15 – 11:30	Understanding the influence of postharvest storage conditions on kiwifruit using RNA-Seq transcriptome profiling	Chelsea Kerr
11:30 – 11:45	‘Hayward’ kiwifruit responses to ethylene in controlled atmosphere storage	Yujie Han
11:45 – 12:00	Laser backscattering imaging parameters of kiwifruit obtained through postharvest shelf life ripening using time series analysis	Zoe Yang
12:00 – 12:15	Non-destructive firmness assessment of ‘SunGold’ kiwifruit: A three-year study	Talon Sneddon
12:15 – 12:30	Considerations for developing a physical scale model of a refrigerated container to study airflow and temperature control	Abdulquadri Alaka
12:30 – 13:30	Lunch	
Session 8	AH1 Climate Resilience A	Chair: Ben van Hooijdonk
13:30 – 14:15	NZIAHS Plenary: Modelling climate change impacts to build climate resilience in horticulture	Kumar Vetharaniam
14:15 – 14:30	Current and future extreme weather events in Aotearoa New Zealand	Adrian McDonald
14:30 – 14:45	The economics of agriculture under climate change	John Saunders
14:45 – 15:00	Climate resilience in pastoral systems	Robyn Dynes
15:00 – 15:30	Afternoon tea	
Session 9	AH2 Anthocyanins	Chair: Samarth
14:15 – 14:30	NZSPB Student Excellence award: Two genes from <i>Vaccinium</i> spp., <i>ANS</i> and <i>UFGT2</i> , modulate anthocyanin production	Alex Nguyen
14:30 – 14:45	Production of red-fleshed blueberry fruit by overexpression of a <i>VcMYBA1</i> anthocyanin transcription factor in <i>Vaccinium corymbosum</i>	Murray Boase
14:45 – 15:00	Anthocyanin production in liquid cell cultures of apple (<i>Malus domestica</i>)	David Lewis
15:00 – 15:30	Afternoon tea	
Session 10	AH1 Climate Resilience B	Chair: Rainer Hofmann
15:30 – 15:45	Root systems for orchards – present and future resilience	Ben van Hooijdonk
15:45 – 16:00	Parthenocarpic fruit development in pears for climate change resilience	Lee Boyd

16:00 – 16:15	Postharvest quality in the face of climate change and a pandemic	Julian Heyes
16:15 – 16:30	Pepino (<i>Solanum muricatum</i>), an alternative plant model to study fruit quality and yield	Marcela Martinez-Sanchez
Session 11	AH2 Metabolites & Development	Chair:
15:30 – 15:45	Do hornworts have a stress-induced flavonoid pathway?	Samarth Kulshrestha
15:45 – 16:00	What did the grasses gain by losing <i>PEAPOD</i> ? Evolution and conserved functionality of organ size and shape regulator <i>PEAPOD</i>	Ruth Cookson
16:00 – 16:15	Detection of dihydroxyacetone in floral nectar of <i>Ericomyrtus serpyllifolia</i> (Turcz) Rye (Myrtaceae) and <i>Verticordia chrysantha</i> Endl (Myrtaceae) demonstrates that the compound is not restricted to the genus <i>Leptospermum</i> (Myrtaceae)	Sylvester Obeng-Darko
16:15 – 16:30	A candidate gene for control of nectar DHA accumulation in mānuka (<i>Leptospermum scoparium</i>)	Ella Grierson
16:30 – 16:45	What is the role of a novel vitamin C derivative in apples?	Jung Cho
17:00 - 18:00	AH1 AGM for NZIAHS	
17:00 – 18:00	AH2 AGM for NZSPB	
17:00 – 18:00	AH5 AGM for IAPB (NZ)	
19:00 – 22:00	Conference Dinner, Wharerata	

Thursday 6th July 2023 NB Parallel Sessions in AH1, AH2		
	AH 1 Plenary	Chair: Li Mo
09:00 – 09:45	NZIAHS Plenary: Spectral-optical fruit analysis	Manuela Zude-Sasse
Session 12	AH 1 Germplasm Conservation A	Chair: Maree Debenham
09:45 – 10:00	Establishment and management of an <i>Actinidia</i> (kiwifruit) <i>in vitro</i> germplasm collection	Azadeh Esfandiari
10:00 – 10:15	Genetic diversity and structure of the <i>Actinidia</i> unimproved germplasm collection held by The New Zealand Institute for Plant and Food Research Limited	Emily Koot
10:15 – 10:30	Pollen conservation as part of integrated conservation strategy: A case study on kiwifruit pollen storage	Jasmine Divinagracia
10.30 – 11.00 am	Morning tea	
Session 13	AH 2 Stress resilience	Chair:
09:45 – 10:00	Cell type specific isolation of plastids and chloroplast biogenesis in resurrection plants	Chris Carrie
10:00 – 10:15	Mode of action and benefits of molecular pattern receptor signalling agricultural compounds	Nathan Balasingham
10:15-10:30	Investigating DNA methylation in white clover (<i>Trifolium repens</i> L.) drought response	Hannah Hodgkinson
10.30 – 11.00 am	Morning tea	
Session 14	AH 1 Germplasm Conservation B	Chair:
11:00 – 11:15	The importance of seed morphology and chemistry for orchid conservation	Andrea McCormick
11:15 – 11:30	A comparative cryopreservation study of temperate and tropical terrestrial and epiphytic orchid seeds	Jayanthi Nadarajan

11:30 – 11:45	Margot Forde Germplasm Centre: The impact of New Zealand's nationally and internationally recognised forage genebank and its continued role in global conservation of forage biodiversity	Zane Webber
11:45 - 12:00	Restoration genetics of a critically threatened New Zealand Myrtaceae, <i>Syzygium maire</i>	Colan Balkwill
12:00 – 12:15	Identifying restorable refugia for a Nationally-Critical tree species in the Greater Wellington region	Julie Deslippe
12:15 – 12:30	Estimation of genetic diversity and the degree of variability within and among a selection of industrial hemp varieties (<i>Cannabis sativa</i> L.) using microsatellite (SSR) markers	Shanika Komahan
12:30 – 13:30	Lunch	
Session 15	AH 2 Alternate Proteins	Chair: Julian Heyes
11:00 – 11:30	Plant-grown dairy?	Abby Thompson
11:30 – 11:45	Extraction of edible protein from green leaves as a human food source	Andrew Muscroft-Taylor
11:45 – 12:15	Leaf protein from pasture – A New Zealand opportunity	Lee Huffman
12:15 – 12:30	Show me the money	Ivan Lawrie
12:30 – 13:30	Lunch	
	AH 1 Plenary	Chair: Lynette Brownfield
13:30 – 14:15	Roger Slack Address: Mastering death to maximise survival - plants do it	Paul Dijkwel
Session 16	AH1 Development Horticulture	Chair: Huub Kerckhoffs
14:15 – 14:30	Conservation agriculture and sustainable intensification of smallholder farming systems in Pacific countries	Rainer Hofmann
14:30 – 14:45	The impact and coping strategies of Sri Lankan vegetable farmers during the COVID 19 pandemic	Sanduni Rathnayake
14:45 – 15:00	The role of kumala (<i>Ipomoea batatas</i>) in achieving food security for Vanuatu society	Amanda Nasse
Session 17	AH2 Pathology	Chair: Sebastian Rivera Smith
14:15 – 14:30	Evaluating virus eradication methods in diseased grapevines from lower health portion of the National Vine Collection	Solomon Wante
14:30 – 14:45	Discovering early infection strategies during Ascomycetes plant-pathogenic interactions	Deny Kumar Shrestha
14:45 – 15:00	Improved annotation of plant genomes by using non-coding gene prediction and different RNA-seq libraries	Chris Brown
	AH1 Closing Session	
15:00 – 15:30	Conference Awards	

Posters	
Male germline development in plants: developing CRISPR/Cas13 as a tool	Baeli Spedding-Devereux
Harnessing environmental cues to promote swifter carbon conversion in perennial crop plants in Controlled Environment Agriculture (CEA)	Ingrid Lindemann
Genotyping target genes in inbred ryegrass using GBS data	Ella Redman
<i>SIDREB3</i> , a negative regulator of ABA responses, controls seed germination, fruit size and the onset of ripening in tomato	Asmita Gupta
CRISPR/Cas9 characterisation of FNS in <i>Marchantia polymorpha</i>	Rebecca Yorker
<i>Vaccinium</i> sp. derived callus cultures as a model system to study anthocyanin pathway genes and co-factors	Rushada Chunekar
Challenges associated with initiating and growing pear in vitro culture	Liya Mathew
Two <i>NAC</i> transcription factors activate <i>DUO1</i> expression from a common cis-regulatory element	Shiny Varghese
The status of vegetable germplasm conservation in the Fiji Islands	Ravneel Kumar
What makes a good anthocyanin activator?	Chethi Waite
Molecular characterization of traditional kumara (<i>Ipomoea batatas</i>) and taewa (<i>Solanum tuberosum</i>) in Aotearoa (New Zealand) as an insurance policy for food security	Simon Semese
Compounds from the phenylpropanoid pathway in plants inhibit the infection process of Sclerotiniaceae fungi	Gabriela Ricardo
Comparison of growth and fruit quality of two hydroponics raspberry cultivars in four substrates	Rui Zhao
Extending the postharvest storage period of broccoli and enhancing its commercial value	Mike Luo