Plant Science Central Conference

6-8 July 2021, Ag/Hort Lecture Block, Massey University, Palmerston North, New Zealand

Tuesday 6th July 2021 NB Parallel Sessions in AH1, AH2 and AH3		
09:30 – 10:45	Registration/morning tea in foyer	
10:45 – 11:15	Mihi whakatau and Opening address	
Session 1	**AH1 Opening session – Climate Change & Environment**	**Chair: Julian Heyes**
11:15 – 12.00	**Opening Address**	Nicola Shadbolt, Climate Commissioner
12.00 – 12.30	**Opening Address**	Dame Juliet Gerrard, Chief Science Advisor to PM
12:30 - 13:30	**Lunch**	
Session 2	**AH1 Gene Editing**	**Chair: Lynette Brownfield**
13:30 – 14:00	**Extended Talk** Plant Gene Editing: are we there yet?	Andy Allan
14:00 – 14.15	Knockout of AcBFT2 by CRISPR/Cas9 – targeted mutagenesis to reduce plant dormancy in kiwifruit *(Actinidia chinensis)*	Dinum Herath
14:15 – 14:30	CRISPR gene editing of the GFP reporter gene in *Epichloë festucae* Fl1	Taryn Miller
14:30 – 14:45	Controlling ripening in kiwifruit	Robert Schaffer
14:45 – 15:00	What are they do*ING*? Gene editing of *INHIBITOR OF GROWTH* in the model legume *Medicago truncatula*	Matthew Mayo-Smith
15:00 – 15:30	**Afternoon Tea**	
Session 3	**AH2 Plant Microbe or Insect Interactions**	**Chair: David Lewis**
13:30 – 13:45	Reduction of the attachment, survival and growth of *L. monocytogenes* on lettuce leaves by UV-C stress	Emmanuel Kyere
13:45 – 14:00	Understanding the chemical effects of Zebra chip disease in two potato *(Solanum tuberosum)* cultivars	Jess Fitzgerald
14:00 – 14:15	*Delphinium* alkaloids as promising botanical pesticides with potential commercial value	Wenliang Xu
14:15 – 14:30	The effects of ultraviolet (UV) light on important crop plant-pathogen interactions in the Taranaki region of New Zealand	Cade Fulton
14:30 – 14:45	Host influence on *Epichloë* seed transmission in *Lolium perenne*	Wei Zhang
14:45 – 15:00	Investigating methods of long-term storage in *Ciborinia camelliae*	Kay Pilkington
15:00 – 15:30	**Afternoon Tea**	
Session 4	**AH5 International Development Workshop**	**Chair: Fran Doerflinger**
13:15 – 13.45	Emerging trends in international development from the perspective of a donor in horticulture research	Irene Kernot
13:45 – 14:00	Enhancing the capacity of mango packhouses in the Mekong River Delta	Tram Anh San

14:00 – 14:15	High-value horticulture builds resilience for small farmers in developing countries	Julian Heyes
14:15 – 14:30	Assessing the effectiveness of a hot water treatment to eliminate *Phytophthora colocasiae* from freshly harvested taro corms in Samoa	Seeseei Molimau-Samasoni
14:30 – 14:45	Industry Association as an agent of system-wide change in temperate fruit industry development in Son La province, Vietnam	Oleg Nicetic
14:45 – 15:00	Horticulture postharvest development initiatives in Asia	Antonio Acedo Jr.
15:00 – 15:15	The complexity of smallholders' livelihoods and the implications for rural development: a case study of cattle management in Eastern Indonesia	Janet Reid
15:15 – 15: 30	**Afternoon Tea**	
Session 5	**AH1 Oral Posters**	
15:30 – 17:00	3 min Poster Presentations	
17:00 – 18:00	**Poster session with drinks and nibbles**	
18:00 -	**Free time (NZSPB: dinner in town)**	

Wednesday 7th July 2021 NB Parallel Sessions in AH1, AH2 and AH3

	AH1 Keynote 1	**Chair: Maree Debenham**
09:00 – 09:45	**Plenary Speaker (IAPB)** The evolution and diverse functions of stress-related red pigmentation in land plants	Kevin Davies
Session 6	**AH1 Flavonoid Metabolism**	**Chair: Charles Dwamena**
09:45 – 10:00	Spatiotemporal modulation of flavonoid metabolism in *Vaccinium* berries	Catrin Guenther
10:00 – 10:15	MYBPA1.1 is a dual regulator of both anthocyanin and proanthocyanidin pathways in *Vaccinium*	Declan Lafferty
10:15 – 10:30	Bicolours, bullseyes and landing lights – molecular regulation of complex floral patterning in *Antirrhinum*	Nick Albert
10:30 – 11:00	**Morning tea**	
Session 7	**AH2 Development Horticulture**	**Chair: Svetla Sofkova-Bobcheva**
09:45 – 10:00	Improving shallot bulb yield in extremely acidic soil by applying N, P fertilisers and lime in West Java, Indonesia	Gina Aliya Sopha
10:00 – 10:15	Using cassava extracts to leach gold	Chris Anderson
10:15 – 10:30	Comprehensive evaluation of antioxidative potential, *in vitro* antioxidant activities and oxidative stability (Pre-recorded)	Anurak Malik
10:30 – 11:00	**Morning tea**	
Session 8	**AH3 Chilling**	**Chair: Jung Cho**
09:45 – 10:00	First steps towards understanding the genetic basis of cold-induced ripening in apple fruit	Jason Johnston
10:00 – 10:15	Transcriptome responses to mild and severe chilling stress in cold-stored ripe cherry tomato fruit	Zoe Erridge

10:15 – 10:30	*AcCBF3* promotes freezing tolerance in *Actinidia* (kiwifruit) fruit	Tina Wang
10:30 – 11:00	**Morning tea**	
Session 9	**AH1 Plant Metabolism and Development**	**Chair: Catrin Guenther**
11:00 – 11:15	Probing the carotenoid pathway for regulators of yellow-fleshed apple	Charles Dwamena
11:15 – 11:30	Gene regulatory network for russetting-related triterpene biosynthesis in apple	Christelle Andre
11:30 – 11:45	Timing is everything: Circadian control of *Medicago truncatula*	Soledad Perez-Santangelo
11:45 – 12:00	Investigating the role of peptide hormones in coordinating growth, nitrogen demand signalling and symbiotic nitrogen fixation	Nijat Imin
12:00 – 12:15	Comparison of polyphosphate accumulation between six species of microalgae	Alex Cliff
12:15 – 12:30	Conditional biased transmission of herbicide-resistant alleles in *Brassica napus*: a gene drive mimic	Tony Conner
12:30 – 13:30	**Lunch**	
Session 10	**AH2 Germplasm Conservation**	**Chair: Sarah Moss**
11:00 – 11:15	Developing cryopreservation methods for *Syzygium maire* zygotic embryos	Karin van der Walt
11:15 – 11:30	Investigation of taxonomy and diversity of *ex situ* collections of *Rhododendron* (subsection *Maddenia*) for conservation	Ling Hu
11:30 – 11:45	Optimisation of germination requirements and long-term storage conditions for *Actinidia* species seeds	Liya Mathew
11:45 – 12:00	Establishing an *in vitro* grape berry growth culture system to study Pinot Noir berry development	Mei Meiyalaghan
12:00 – 12:15	In vitro therapies for effective eradication of virus species from *in vitro*-grown potato shoot tips	Jean Bettoni
12:15 – 12:30	Indigenous responses to taonga impacted by Myrtle rust	Alby Marsh
12:30 – 13:30	**Lunch**	
Session 11	**AH3 Modelling**	**Chair: Nicolette Niemann**
11:00 – 11:30	**Extended talk** Applications of models in a commercial supply chain	Sunny George Gwanpua
11:30 – 11:45	Optimal box design for containerised shipping of produce	Gabe Redding
11:45 – 12:00	A 10-year journey for predicting storage life in apples	Jason Johnston
12:00 – 12:15	A multi-omics apple profiling to identify at harvest, biomarkers predicting perfect storage life	Laurie Favre
12:15 – 12:30	Predicting dried quality of Fijian *Theobroma* cacao beans using a mechanistic model (Pre-recorded)	Rupa Raju
12:30 – 13:30	**Lunch**	
	AH1 Keynote 2	**Chair: Andrew East**

13:30 – 14:15	**Plenary Speaker** **Integrative approaches to understand and predict avocado ripening**	Romina Pedreschi
Session 12	**AH1 Plant Development**	**Chair: Soledad Perez-Santangelo**
14:15 – 14:30	Prototype planar cordon apple orchards double yield and increase fruit quality	Ben van Hooijdonk
14:30 – 14:45	Do localised supra-optimal concentrations of jasmonates control tissue responses?	Nathanael Napier
14:45 – 15:00	A transcriptome study of shoot branching potential	Luke Luo
15:00 – 15:30	**Afternoon tea**	
Session 13	**AH2 Climate Change and Environment**	**Chair: Rainer Hofmann**
14:15 – 14:30	Engineering perennial ryegrass for greater energy density, growth and lower on-farm emission	Luke Cooney
14:30 – 14:45	Modelling the effect of climate change on land use suitability for growing cherry	Carlo van den Dijssel
14:45 – 15:00	Conditions triggering N_2O production from *Chlamydomonas reinhardtii* axenic cultures and putative pathways involved	Laura Teuma
15:00 – 15:30	**Afternoon tea**	
Session 14	**AH3 Postharvest Treatment**	**Chair: Abdul Jabbar**
14:15 – 14:30	Effects of phosphine on fruit quality and target pest mortality of 'Hass' avocado fruit	Paul Pidakala
14:30 – 14:45	Semi-commercial application of hot water treatment for control of bull's eye rot in apples	Jung Cho
14:45 – 15:00	Postharvest curing and storage of New Zealand-grown potato cultivars ('Moonlight' and 'Nadine') for export to Fiji	Hans Mahilum
15:00 – 15:30	**Afternoon tea**	
Session 15	**AH1 Tree & Vine Physiology**	**Chair: Michael Kramer**
15:30 – 15:45	Use of physiological principles to guide precision orchard management and facilitate increased yields of premium quality fruit	Ken Breen
15:45 – 16:00	New Zealand Juniper studies	Svetla Sofkova
16:00 – 16:15	Floral bud type influences fruit quality in 'PremP009' pear	Hassan Saei
16:15 – 16:30	Comparing light interception and productivity in two modern apple-growing systems	Michelle Schurmann
16:30 – 16:45	Can summer pruning strategies produce more compact rabbiteye blueberry plants grown in tunnels?	Jill Stanley
16:45 – 17:00	Can reflective mulch improve light conditions to reduce fruit quality variability in very narrow-row planar cordon cherries?	Claire Scofield
17:00 - 18:00	**AH1 AGM for NZSPB**	
17:00 – 18:00	**AH2 AGM for NZIAHS**	
17:00 – 18:00	**AH3 AGM for IAPB (NZ)**	

19:00 – 22:00	**Conference Dinner, Rugby Institute, Massey University**	
Session 16	**AH2 Biosecurity**	**Chair: Ed Morgan**
15:30 – 15:45	Future challenges at the border. The next generation of biosecurity researchers	David Teulon
15:45 – 16:00	Facing unfamiliar new biological threats: a risk assessment framework for Aotearoa	Tracey Godfery
16:00 – 16:15	A case study of the New Zealand response to the introduction of Myrtle Rust	Madeline Marshall
16:15 – 16:30	Detecting volatile organic compounds using an insect odorant receptor device	Ned Treacher
16:30 – 16:45	No evidence of genetic bottlenecks following the accidental introduction of three agricultural weeds into New Zealand	Sandra Savinen
16:45 – 17:00	Can sterile parasitoids be employed for eradication by mitigating potential risk of non-target impacts?	Kiran Horrocks
Session 17	**AH3 Supply Chain**	**Chair: Sunny George Gwanpua**
15:30 – 15:45	Aggregating 'Hass' avocado fruit before packing	David Billing
15:45 – 16:00	Severity of scuffing discolouration of SunGold™ Kiwifruit as influenced by maturity	Talon Sneddon
16:00 – 16:15	Consequences of sustainable packaging systems on kiwifruit weight loss and quality maintenance	Raquel Lozano
16:15 – 16:30	Influence of storage technologies on mechanical properties of blueberry	Sebastian Rivera-Smith
16:30 – 16:45	Considerations for developing a physical scale model of a refrigerated container to study airflow and temperature control	Abdulquadri Alaka
16:45 – 17:00	A survey of conditions in the kiwifruit supply chain in India and Singapore	Praveen Veeregowda

Thursday 8th July 2021 NB Parallel Sessions in AH1, AH2 and AH3		
	AH1 Keynote 3	**Chair: Richard Macknight**
09:00 – 09:45	**Plenary Speaker – NZSPB Roger Slack Award** Insights into the biosynthesis, control and function of red pigmentation in plants	Kathy Schwinn
Session 18	**AH 1 Non-Destructive Technologies**	**Chair: Mo Li**
09:45 – 10:00	Near infrared spectroscopy and aquaphotomics for non-destructive fruit quality measurement	Harpreet Kaur
10:00 – 10:15	Spectrally distinguishing kiwifruit chilling injury from other tissue damage types in high-speed grading applications	Mark Wang
10:15 – 10:30	Kiwifruit storage breakdown disorder detection using laser backscattering image system	Zoe Yang
10.30 – 11.00 am	**Morning tea**	
Session 19	**AH 2 NZSPB Michael McManus Awardees**	**Chair: Paul Dikjwel**
09:45 – 10:00	The Role of *DAM* and *SVP*-Like Genes in Regulating Dormancy Cycle in Temperate Fruit Trees	Rongmei Wu

10:00 – 10:15	Molecular regulators of masting in *Celmisia lyallii*	Samarth
10.30 – 11.00 am	**Morning tea**	
Session 20	**AH 1 Ripening and Shelf Life**	**Chair: Sebastian Rivera**
11:00 – 11:30	**Extended Talk** Functional characterization of tomato (*Solanum lycopersicum*) SlPDX1-3 reveals a role for vitamin B6 in regulation of fruit ethylene biosynthesis	Nigel Gapper
11:30 – 11:45	Post-storage softening of 'Zes008' kiwifruit	Kristie O'Donnell
11:45 - 12:00	Quantifying ethylene production magnitude and timing in SunGold™ kiwifruit as influenced by ethylene exposure	Carlos Lopez-Lozano
12:00 – 12:15	Early stages towards understanding the genetic basis for maintaining fruit quality at high ambient market temperatures	Anna Tattersall
12:15 – 12:30	Quality and cell wall characteristics in specialty tomatoes during extended shelf-life	Erin O'Donoghue
12:30 – 13:30	**Lunch**	
Session 21	**AH 2 Tree & Vine Physiology**	**Chair: Claire Scofield**
11:00 – 11:15	How pre-harvest foliar potassium nitrate improved at-harvest fruit quality of 'Zesy002' kiwifruit?	Marya Hashmatt
11:15 – 11:30	Exploring the regional effect of pollinisers on fruit set and quality of 'PremP009' (PIQA™BOO™) pear	Jess Byrne
11:30 – 11:45	'Scifresh' apple fruit size and colour remain high as trees age in a planar cordon orchard design	Tessa Leitch
11:45 – 12:00	Chilling requirements of an extensive apple germplasm set based on two bud-break phenotyping approaches	Moon Chen
12:00 – 12:15	Reflecting on light in kiwifruit orchards	Michael Kramer
12:15 – 12:30	Crop load influences fruit quality more than canopy structure in 'Zesy002' kiwifruit	Kris Kramer-Walter
12:30 – 13:30	**Lunch**	
Session 22	**AH3 Breeding Technologies**	**Chair: Rowan Herridge**
11:00 – 11:15	Overexpression of a *VcMYBA* anthocyanin transcription factor in *Vaccinium corymbosum* produces dark red shoots *in vitro*	Murray Boase
11:15 – 11:30	Evolution of cytonuclear coordination in *Tragopogon* (Asteraceae) allopolyploids	Sidra Hussain
11:30 – 11:45	Stable genetic transformation of *Papaver somniferum* increases capsular morphinan alkaloid concentrations	Murray Boase
11:45 – 12:00	Understanding pollen abortion in female kiwifruit	Liam Le Lievre
12:00 – 12:15	Nitrous oxide and ploidy changes in a model crop	Juana Cordoba
12:15 – 12:30	Automated identification of blueberry flowering buds using RGB-depth cameras	Janelle Mo Li
12:30 – 13:30	**Lunch**	
	AH 1 Keynote 4	**Chair: Allan Woolf**
13:30 – 14:15	**Plenary Speaker** Non-powered cool storage solutions	Randy Beaudry
14:15 – 14:30	**Conference Close & Awards**	**Julian Heyes**

Posters

Number	Presenting Author	Title
P1	Tyler McCourt	The Role of DUF247 in Ryegrass Self-Incompatibility
P2	Danxia Shi	Antioxidant Nutrients Evaluation of Hass Avocado By-products Extracts
P3	Alex Nguyen	Functional characterisation of candidate genes modulating anthocyanin biosynthesis in *Vaccinium*
P4	Marian McKenzie	Identification of metabolites associated with good and bad potato flavour
P5	Caitlin Harris	Assessing the impact of self-fertility in ryegrass
P6	Trevorne Douglas	The response of three banana hybrids to drought and simltaneous drought and pathogen stress
P7	Murray Boase	Stable transformation of *Solanum muricatum* with a *MYBA* anthocyanin transcription factor from *Vaccinium corymbosum* produces fruit with purple skin and flesh
P8	Umani Walallawita	Changes in lycopene content in powdered Red ('Merlice') and Orange ('Moonglow') tomatoes during freeze-drying and long-term storage
P9	Tony McGhie	Exploring the transcriptome basis of cold tolerance signals of grafted apple stem vasculature using RNA-seq workflow
P10	Nicolette Niemann	Characteristics of a 'PremA96' apple skin disorder
P11	Ruth Palmer	Measurement of density, for the determination of dry matter and brix
P12	Shiny Varghese	Genetic technologies for developing F1 hybrid ryegrass
P13	Henry Luo	Expression of the *GUSA* reporter transgene from *Escherichia coli* in various organs of stably transformed *Solanum muricatum*
P14	Thilini Warusawithana	Gene duplication fate in a genetic pathway context: An examination of the plant epidermal cell fate pathway in the allopolyploid genus *Pachycladon (Brassicaceae)*
P15	Kyle Macadam	Hass avocado yield estimation viability using machine vision
P16	Chelsea Kerr	Why do some fruit store for longer than others? Do oxidative processes play a role?
P17	Yujie Han	Hayward kiwifruit responses to modified atmosphere packaging
P18	Michele Reid	The "how to" guide for molecular breeding of High Metabolisable Energy GM ryegrass
P19	Sarah Robinson	Understanding Peptide Hormone Signalling: a functional analysis of plant peptide-receptor interactions
P20	Rainer Hofmann	Intraspecific differences in the transpiration rates of white clover in drying soil
P21	Danna Camiring	Characterization of Candidate Genes Associated with Onion *(Allium cepa L.)* Bulb Formation
P22	Su Liu	In vitro multiplication of *Juniperus communis L.* from shoot tip explants– preliminary findings
P23	Julie Latimer	Importing Grapevine Germplasm into New Zealand - Level 2 Post Entry Quarantine
P24	Dona Shanika Komahan	Evaluation of the performance and potential of Industrial Hemp *(Cannabis sativa L.)* cultivars across two environments in the North Island of New Zealand
P25	Dipenhumar Hadiya	Studying the potential for improved irrigation of apples using Nanobubble technology
P26	Mary Christey	Phenotypic variation in kiwiberry *(Actinidia arguta)* induced by γ-irradiation