

SOILS, INVESTING IN OUR FUTURE

2021 JOINT CONFERENCE

**SOIL SCIENCE AUSTRALIA
& THE NEW ZEALAND
SOCIETY OF SOIL SCIENCE**

27 JUN–2 JUL 2021, Cairns Australia



PLATINUM SPONSOR



DRAFT PROGRAM – AS AT 28.5.21

AEST	Friday 25 and Saturday 26 June 2021	NZ
	Soil Judging Competition Practice Day, Cairns	
AEST	Sunday 27 Jun 2021	NZ
1600 1700 - 1930	Soil Judging Competition Day, Cairns Pre Conference Registration Welcome to Country Welcome Function, <i>kindly sponsored by Soil CRC - Cairns Convention Centre</i>	
AEST	Monday 28 June 2021	NZ
7.00 – 8.00	Registration Desk Opens Start your day with an Espresso Coffee, <i>kindly sponsored by ACIAR (open all day)</i>	9.00- 10.00
Room		
8.00 – 8.45	Conference Opening	10.00 – 10.45
8.45 – 9.30	Plenary Keynote:	10.45 – 11.30
9.30 – 10.15	Plenary Keynote: Damien Field, The University of Sydney	11.30 – 12.15

MONDAY 28 JUNE

10.15 - 10.45	Morning Tea					12.15 - 12.45
Room						
Theme	Soils and Climate Change	Advances in soil science for improved decision making	Pedology, soil landscapes and spatial mapping: informing the future	Effective management of nutrients and water <i>Kindly Sponsored by CSBP Soil and Plant Analysis Laboratory</i>	Protecting our soil resource from degradation & contamination	
Chair						
10.45 - 11.00	Evaluation of dissolved organic carbon stabilisation in soils using $\delta^{13}C$ isotopic signature Kakali Roy* <i>University of New England AU</i>	The role of soil in delivering co-benefits through carbon farming under Queensland's Land Restoration Fund Linda Lee & Diane Allen <i>Department of Environment & Science</i>	Soil hydraulic attribute prediction using pedotransfer functions and modelled soil attributes in dryland production regions Uta Stockmann <i>CSIRO Agriculture and Food AU</i>	Amelioration of Subsoil Constraints Using Innovative Nano-products Yunying Fang <i>NSW Department of Primary Industries AU</i>	Innovative approaches to manage subsoil acidity Guangdi Li <i>NSW Department of Primary Industries AU</i>	12.45 - 13.00
11.00 - 11.15	Reducing greenhouse gas emissions from peatlands in Asia-Pacific region Shu Kee Lam <i>The University of Melbourne AU</i>	Classifying Soil Corrosivity Potential in Arid and Coastal Acid Sulfate Soil Environments for Fence Management Andrea Stiglingh* <i>University of Adelaide AU</i>	Interpretive machine learning to understand impact of soil constraints on crop yield for Precision Agriculture Patrick Filippi <i>The University of Sydney AU</i>	Application of anaerobic digestate to soil columns with two contrasting textures Temma Carruthers-Taylor <i>Monash University AU</i>	Using airborne Lidar to monitor subsidence of Organic Soils in New Zealand Jack Pronger <i>Manaaki Whenua Landcare Research NZ</i>	13.00 - 13.15
11.15 - 11.30	Nitrous oxide emissions from urine patches in grassland: influence of nitrogen loading and soil moisture Bhupinderpal Singh <i>NSW Department of Primary Industries AU</i>	New approach for predicting nitrification and its fraction of N ₂ O emissions in global terrestrial ecosystems Baobao Pan* <i>University of Melbourne AU</i>	DSM for agricultural decision making: Demonstrating the value of soil data for variable-rate soil management Stirling Robertson <i>University of Southern Queensland AU</i>	Characterizing phosphorus behaviour in Vertosols to improve fertilizer management Nelly Raymond <i>The University of Queensland AU</i>	Determination of Cd ²⁺ ions in soil and plant samples using a modified carbon paste electrode Nilusha Ubeynarayana* <i>Massey University NZ</i>	13.15 - 13.30
11.30 - 11.45	Effect of nitrogen availability on priming effect on the decomposition of soil organic matter Yunyun Zheng* <i>La Trobe University AU</i>	The Queensland Gully Classification Scheme and how it works Robin Thwaites <i>Griffith University</i>	Transforming soil constraints into mapped opportunities John McLean Bennett <i>University of Southern Queensland AU</i>	Comparison of stable isotopes approaches for tracking N dynamics in soils with different management histories Sarita Manandhar* <i>The University of Queensland AU</i>	Contamination and deficiency in producing and receiving soils of palm kernel expeller Hadee Thompson-Morrison* <i>University of Canterbury NZ</i>	13.30 - 13.45
11.45 - 12.00	The impact of liming on the methanotrophic population in semi-arid arable soil Sasha Jenkins <i>UWA AU</i>	Tailoring land suitability assessment to industry development: establishing a multi-functional land evaluation framework Jim Payne <i>Department of Environment</i>	Application of Vis-NIR Spectroscopy for the Determination of Soil Variability of pH and Liming Requirement Bethany Sleep <i>University of Adelaide AU</i>		Additive Benefits of Organic and Inorganic Amendments on the Structural Stability of a Sodic Subsoil Yunying Fang <i>NSW Department of Primary Industries AU</i>	13.45 - 14.00

MONDAY 28 JUNE

12.00 - 12.30	Soil Judging Awards					14.00 - 14.15
12.30 - 13.15	Lunch			Book launch for "The Soils of Aotearoa New Zealand" Authors: Allan Hewitt, Megan Balks, & David Lowe Guest Speaker: Rt Hon Simon Upton, Parliamentary Commissioner for the Environment University of Waikato, NZ <i>Sponsored by the School of Science/Te Aka Mātuatua, University of Waikato, Hamilton</i>		14.15 - 15.15
Room						
Theme	Soils and Climate Change	Advances in soil science for improved decision making	Pedology, soil landscapes and spatial mapping: informing the future	Effective management of nutrients and water	Protecting our soil resource from degradation & contamination	
Chair						
13.15 - 13.30	Integration of soil-based carbon sequestration techniques - an opportunity for landscape regeneration and large-scale sequestration Wolfram Buss <i>Australian National University</i>	Blessed are those willing to pay for they will continue to inherit the good earth Alex McBratney <i>The University of Sydney AU</i>	Regionalisation of New Zealand into hierarchical soilsapes Pierre Roudier <i>Manaaki Whenua - Landcare Research NZ</i>	Compost extract increases soil microbial properties and tomato growth Ta Nguyen <i>Microbiology Labs Australia AU</i>	Impact of novel materials on alkalinity movement down acid soil profiles when combined with lime Han Weng <i>La Trobe University AU</i>	15.15 - 15.30
13.30 - 13.45	Australian Cool Farm Initiative – corporate investment for industry benefit Cassandra Scheffe <i>Agrisci Pty Ltd AU</i>	SAST - A framework for accounting for soils natural capital value Peter Wilson <i>CSIRO AU</i>	Erosion mechanisms in Holocene sediments and how they inform future management strategies: Sunbury, Victoria Temma Carruthers-Taylor <i>Environmental Earth Science</i>	Conservation agriculture impacts on potassium fractions in soil profile and system productivity in Ganges Floodplain Md. Jahedul Islam* <i>Bangladesh Agricultural Research Institute</i>	Bioaccessibility, behaviour and fate of PAHs; their interaction with black carbon during co-composting remediation Cal Leech <i>University of New England AU</i>	15.30 - 15.45
13.45 - 14.00	Soil organic carbon sequestration potential for Australia José Padarian* <i>The University of Sydney AU</i>	Convolution neural network for simultaneous prediction of soil properties in New Zealand Yuxin Ma <i>Landcare Research NZ</i>	Assessing and mapping soil materials of alluvial gully systems and their erodibility for prioritizing rehabilitation works Robin Thwaites <i>Griffith University</i>	Assessing effective pasture root depth for irrigation scheduling by water balance and soil moisture monitoring Birendra KC <i>Aqualinc Research Ltd</i>	Aging Effect on Fractionation of Palladium Compounds and Roadside Dust by BCR Sequential Extraction ZHUYUN GU* <i>Royal Melbourne Institute of Technology AU</i>	15.45 - 16.00

MONDAY 28 JUNE

Chair						
14.00 - 14.15	Effect of inundation on greenhouse gas emissions from coastal wetland soils with different vegetation types Chang Xu Monash University AU	Methods for setting targets for soil quality parameters Matthew Taylor Waikato Regional Council NZ	Soil erosion rejuvenates vegetation community composition Andre Eger Manaaki Whenua - Landcare Research NZ	Deeply weathered soils of the Glass House Mountains area - characteristics and implications for nutrient management Jon Walton Queensland Department of Environment and Science AU	East Trinity Acid Sulfate Soil Remediation: 20 years on Michelle Martens Department of Environment and Science AU	16.00 - 16.15
14.15 - 14.30	Testing IPCC Tier 2 Steady State Soil Carbon Model for Australian Croplands Senani Karunaratne CSIRO	Representativeness of soil moisture networks in Australian grain cropping regions Niranjan Manikku Acharige The University of Sydney AU	Imagery and vegetation index selection for analysis of crop yields influenced by soil constraints Fathiyya Ulfa* The University of Queensland AU	Denitrification potential of agricultural soils in the Australian Wet Tropics, compared to woodchips Paul Nelson James Cook University AU	Methodology to determine soil attribute changes at East Trinity Acid Sulfate Soil Remediation site Jeremy Manders Queensland Dept Environment and Science AU	16.15 - 16.30
14.30 - 14.45	Interactive effects between long-term exposure to elevated atmospheric CO2 and grazing on soil C preservation Marcela Gonzalez Agresearch NZ	We guess you don't mind wasting money? The economic imperative of diagnostic accuracy John McLean Bennett University of Southern Queensland	A brief history of the D-horizon – does it still have a place in soil-science? Ben Harms Department Environment and Science	Effect of irrigation scheduling on Nitrous Oxide emissions and plant biomass: a field study Camille Rousset Lincoln University NZ	Assessing the durability of deep applications of calcium nitrate and phosphorus in ameliorating subsoil acidity Han Weng La Trobe University AU	16.30 - 16.45
14.45 - 15.15	Afternoon Tea					16.45 - 17.15
Room						
Theme	Soils and Climate Change	Advances in soil science for improved decision making	Pedology, soil landscapes and spatial mapping: informing the future	Effective management of nutrients and water	Protecting our soil resource from degradation & contamination	
Chair						
15.15 - 15.30	How will rising sea levels change the geochemistry of coastal soils in South Australia? Emily Leyden* Adelaide University AU	Quantifying processes responsible for pH _{Ca} changes following the incorporation of organic materials to acid soils Hoang Han Nguyen* NSW Department of Primary Industries) AU	Pedological development of scalded soil in western NSW, 55 years after reclamation Stephen Cattle The University of Sydney AU	Effect of Myrtaceae on nitrification in soil: implications for the land application of wastewater Alexandra Meister* University of Canterbury NZ	Effect of Amino Acids, Fulvic Acid & CPPA on the Breakdown of soil Glyphosate Residue Alice Kirk Dual Chelate Fertilizer AU	17.15 - 17.30
15.30 - 15.45	Rapid assessment of erosion risk after the 2019-20 wildfires Xihua Yang NSW Department of Planning, Industry and Environment AU	A systematic evaluation of multisensor data and multivariate prediction methods for digitally mapping exchangeable cations Maryem Arshad University of New South Wales AU	A landscape pedological approach to estimate plant available water capacity Mark Thomas CSIRO AU	Evaluating N-controlled release fertilizer formulations using a new controlled environment lysimeter design Gunaratnam Abhiram Massey University, New Zealand NZ	Accelerating soil formation in bauxite residue; an innovative solution to tailings management Grace Scullett-Dean* University of Western Australia AU	17.30 - 17.45

 Speaker in Australia
  Speaker in New Zealand
  Virtual Speaker
 * Student Speaker

MONDAY 28 JUNE

Room						
15.45 - 16.00	Investigating the interactive effects of plant phosphorus status and elevated CO2 on root exudation James O'Sullivan* <i>La Trobe University AU</i>	Application of vis-NIR spectroscopy for in-field determination of soil liming requirements at high spatial resolution Bethany Sleep <i>University of Adelaide AU</i>	Classifying Murrumbidgee valley soils for cotton production Jonathon Moore* <i>The University of Sydney AU Department Environment and Science AU</i>	Horticulture systems agronomy for improved water quality; approaches for soil water nitrate measurement and mitigation Stuart Irvine-Brown <i>DAF</i>	Eco-engineering soil formation from Fe ore tailings driven by pioneer plant colonization Songlin Wu <i>Sustainable Minerals Institute, The University of Queensland AU</i>	17.45 - 18.00
16.00 - 16.15	Nutrient and microbial biomass sensitivity to drought reveals potential different pattern of soil nutrient cycling in soils associated with C3 and C4 species Chioma Igwenagu* <i>Hawkesbury Institute for the Environment</i>	Wheat seedling response to ionic and physical constraints in sodic soils is not closely linked Monia Anzooman <i>Sugar Research Australia AU</i>	Digital assessment of soil salinity in Samoa Md Abdul Kader <i>University of South Pacific</i>	Impact of lignite on N response by a leafy vegetable in the high-input vegetable systems Pan Ei Ei Kyaw* <i>The University of Melbourne AU</i>	Association of soil organic matter fractions with the assembly of soil communities for the biodegradation of chlorinated pollutants Christian Krohn* <i>La Trobe University</i>	18.00 - 18.15
16.15 - 16.30	Managing soil for high performance after a drought: A discussion Rebecca Mitchell <i>Agriculture Victoria AU</i>	Using the Homosoil concept to enrich the soil data infrastructure of sparse soil data environments: A case study in Mali Andree Nenkam Mentho* <i>University of Sydney</i>	Defining soil properties for modelling crops at varying scales and agroecologies Andree Nenkam Mentho* <i>The University of Sydney AU</i>	Impacts of crop residue management on soil phosphorous fractions under conservation agriculture with intensive cropping Md. Maniruzzaman* <i>Bangladesh Agricultural Research Institute</i>	Advances in methods for distinction of ambient background soil concentrations from point source contamination Hannah Mikkonen <i>CDM Smith</i>	18.15 - 18.30
16.30 - 16.45	Identifying soil and landscape features enhances successful translocation for the critically endangered Hibbertia sp. Bankstown Linda Henderson <i>NSW Department of Planning, Industry and Environment</i>	Investigation of Soil Water Partitioning Coefficients of Per and Polyfluoroalkyl Substances (PFASs) Thi Minh Hong Nguyen* <i>The University of Queensland AU</i>	A Reconnaissance Survey of Alpine Humus Soils (Chernic Tenosols) in Kosciuszko National Park Ivanah Oliver* <i>University of New England AU</i>	Improved nutrient and water use efficiency in vegetable crops due to compost use Doris Blaesing <i>RM Consulting Group Pty Ltd AU</i>		18.30 - 18.45
16.45 - 17.00		Options for the next generation of soil moisture sensors Marcus Hardie <i>Utas / Tasmanian Institute of Agriculture AU</i>				18.45 - 19.00
17.00 - 20.00	Early Career Session and Networking Event, Cairns Convention Centre			NZSSS Welcome Function, The University of Waikato		19.00 - 20.00

AEST	Tuesday 29 June 2021					NZ
	Start your day with an Espresso Coffee, kindly sponsored by ACIAR (open all day)					
Room						
8.45 - 9.00	Housekeeping					10.45 - 11.00
9.00 - 10.00	Plenary Keynote: Professor Thomas Bishop, Associate Professor, School of Life and Environmental Sciences The University of Sydney					11.00 - 12.00
10.00 - 10.30	Morning Tea					12.00 - 12.30
Room						
Theme	Soil structural and hydrological systems and their management in the environment	Advances in soil science for improved decision making	Pedology, soil landscapes and spatial mapping: informing the future	Effective management of nutrients and water	Protecting our soil resource from degradation & contamination	
Chair						
10.30 - 10.45	Acidification potential of sulfidic peat swamps in southern Australia Vanessa Wong School Of Earth Atmosphere and Environment, Monash University AU	NIR, Machine Learning and Cloud connectivity - the perfect combination for real-time soil analysis. Tim Weaver CSIRO AU	Simple functions for modelling soil water dynamics from saturation to dryness Budiman Minasny The University of Sydney AU	Improving nitrogen fertiliser use efficiency with concentrated urea banding - soil and root effects Graeme Sandral New South Wales Department of Primary Industries AU	Effects on physical contaminants on soil physical functioning Stephen Cattle The University of Sydney AU	12.30 - 12.45
10.45 - 11.00	Reactions and interactions between ameliorants used to treat complex soil constraints Mark Whatmuff NSW Department of Primary Industries AU	The potential for hyperspectral images to predict soil macronutrients in successive organic crop cycles Michael Farrar* University of The Sunshine Coast	Updating the Australian soil texture digital soil maps Brendan Malone CSIRO AU	Improving wheat's quid pro quo: losing less H2O to assimilate CO2 Xiaojuan Wang La Trobe University AU	Factors affecting PFAS sorption in soils Rai Kookana CSIRO AU	12.45 - 13.00
11.00 - 11.15	Reversible strengthening in southern Australian sandy soils: towards a pedogenic understanding of crop production losses Mark Thomas CSIRO AU	Monitoring soil organic carbon change using RothC and improved plant residue inputs Kate Coelli* The University of Sydney	A new high-resolution terrain algorithm for resolving complex soil landscape relationships in Southeast NSW. John Gallant CSIRO Land and Water AU	Interactions between root architecture, phosphorus placement and moisture-availability determine growth of two contrasting durum lines Frederik Van Der Bom University of Queensland AU	Clearing and burning brigalow increases soil fertility prior to nutrient decline under cropping or grazing Craig Thornton DNRME AU	13.00 - 13.15
11.15 - 11.30	Improving infiltration modelling for crusting soils by measuring the density of the discrete surface crust Cameron Leckie* University of Southern Queensland AU	Improved prediction of soil exchangeable sodium percentage (ESP) using wavelet analysis Nan Li UNSW AU	TERN Ecosystem Surveillance Monitoring investing in critical research infrastructure for the future. Luke Finn & Luke Mosely Tern	Lignite Ammonia Adsorption and Surface Chemistry after Dewatering Bing Han University of Melbourne AU		13.15 - 13.30

Speaker in Australia Speaker

TUESDAY 29 JUNE

Room						
11.30 - 11.45	Improving yields by ameliorating alkaline sodic subsoils in a medium rainfall region of southern NSW Shihab Uddin NSW Department of Primary Industries AU	Evaluating In-Season Crop Condition Based On Estimation Of Crop Water Use On Sodic Soil Malini Roy Choudhury The University of Queensland AU	Sampling the environmental space in land resource surveys: A Queensland example. Mark Crawford DNRME Qld Government AU	Mapping nutrient availability in large intact soil cores Casey Doolette University of South Australia AU	The Monler Level Spreader for soils where topsoil disturbance must be avoided Colin Schiller Eromanga Community Erosion Control Group	13.30 - 13.45
11.45 - 12.00		Digital regolith mapping of clay across the Ashley irrigation area using electromagnetic induction data and inversion modelling John Triantafilis Manaaki Whenua	Consistency of pedotransfer function predictions, its effect and implications Nathan Odgers Manaaki Whenua – Landcare Research NZ	Optimising the management of poultry litter in Australian cotton production Wendy Quayle CeRRF, Griffith, Deakin University AU	Assessing the influence of biological soil amendments on accelerated conversion of coal-spoils to functional soils Samadhi Gunathunga* The University of Queensland AU	13.45 - 14.00
12.00 - 13.00	Lunch					14.00 - 15.00
Room						
Theme	Soil structural and hydrological systems and their management in the environment	Advances in soil science for improved decision making	Pedology, soil landscapes and spatial mapping: informing the future	Effective management of nutrients and water	Protecting our soil resource from degradation & contamination	
Chair						
13.00 - 13.15	Agglomerative hierarchical clustering provides a functional grouping of soils for GBR water quality modelling Tessa Chamberlain Department of Resources	Soil Data for Multidisciplinary Team Projects Pam Hazelton University of Technology Sydney AU	Adding geomorphic context to S-map via soil landform trees Linda Lilburne Manaaki Whenua NZ	Nitrogen cycling dynamics in soil amended with frass derived from Black Soldier Fly Sasha Jenkins Uwa AU	Sorption of cadmium isotopes in three New Zealand soils Niklas Lehto Lincoln University NZ	15.00 - 15.15
13.15 - 13.30	Using geophysics to validate conceptual models of groundwater dependent ecosystems within the Lower Balonne floodplain Sunny Jacobs* Department of Resources AU	Development of robust chemometrics models to predict soil organic carbon contents using legacy soil information Senani Karunaratne The University of Sydney AU	Predicting crop rootzones in calcareous soils of South Australia and Victoria Geoff Kew Wetherby Soil Survey Pty Ltd AU	Optimising nitrogen recovery from livestock waste for multiple production and environmental benefits Clayton Butterly The University of Melbourne AU	Assessing leaching behaviour of perfluorinated alkyl substances from contaminated soils using static/column leaching tests Shervin Kabiri University of Adelaide AU	15.15 - 15.30
13.30 - 13.45	Hill country seepage wetland sediment characteristics and their denitrification capacity Suha Sanwar* Massey University	Use of DESIS imaging spectrometer imagery for precision agriculture purposes Mario Fajardo Precision Agriculture Laboratory, The University of Sydney AU	Clay content mapping and uncertainty estimation using weighted model averaging Dongxue Zhao* University of New South Wales AU	Optimising pasture production in dairy systems by closing the gap on nitrogen loss Michael Fitzgerald NSW Dpi AU	Restoring soil physical and biological functions – a lesson from eco-engineering tailings into technosols Longbin Huang The University of Queensland AU	15.30 - 15.45

TUESDAY 29 JUNE

Room						
13.45 - 14.00	Soil hydraulic properties and behaviour of a mole-and-tile drained catchment in Southland, New Zealand Kirstin Deuss* <i>Lincoln University NZ</i>	Overcoming subsoil acidification: monitoring lime application using infrared spectroscopy Ruby Hume* <i>The University of Adelaide AU</i>	Developing pedotransfer functions for predicting soil hydraulic properties of Australian soils Sanjeevani Pallegedara Dewage <i>CSIRO AU</i>	Denitrifying bioreactor walls effectively remove nitrogen from shallow groundwater under sugarcane in the Wet Tropics Paul Nelson <i>James Cook University AU</i>	Relation between restoration of bengawan solo watershed area with soil quality Denni Tanjung <i>UNS</i>	15.45 - 16.00
14.00 - 14.15	Plant available water in rock fragments: A novel repacked core methodology Balin Robertson <i>Landcare Research NZ</i>	EMI surveys for high-resolution soil moisture monitoring Mohmmad Omar Faruk Murad <i>The University of Sydney AU</i>	Determination of optimal mathematical model and sample size to map CEC in a sugarcane field Xueyu (Tom) Zhao <i>UNSW AU</i>	OPTIMIZING THE USE OF SOIL ORGANIC AMENDMENTS FOR IMPROVED ENVIRONMENTAL AND AGRONOMIC OUTCOMES Daniele De Rosa <i>Queensland University of Technology AU</i>	Monitoring soil erosion risk in the agricultural landscapes of South Australia using satellite data Giles Forward <i>Department for Environment and Water AU</i>	16.00 - 16.15
14.15 - 14.30	What affects response of soil hydraulic properties to no tillage? Answers from a meta-analysis Wei Hu <i>Plant and Food Research NZ</i>	Soil erosion modelling as a tool for future land management and conservation planning Amelie Jeanneau* <i>The University of Adelaide AU</i>	Quantifying wheat yield losses due to soil sodicity under different climate conditions in north-eastern Australia Chloe Lai* <i>University of Southern Queensland</i>	Recycling nutrients in food waste: Application of an anaerobic digestate to soil columns with two contrasting textures Temma Carruthers-Taylor <i>Environmental Earth Science AU</i>	New triggers and new targets for effective acid soil management Helen Burns <i>NSW Department of Primary Industries AU</i>	16.15 - 16.30
14.30 - 14.45	Extracellular enzyme activity and soil water repellency: teasing out mechanisms Robert Simpson <i>New Zealand Institute for Plant and Food Research NZ</i>	Within-paddock mapping of soil constraints based on legacy and local data Thomas Orton <i>The University of Queensland AU</i>	Mapping the variability of subsurface acidity in southern NSW Kirsten Barlow <i>Precision Agriculture Pty Ltd AU</i>			16.30 - 16.45
14.45 - 15.15	Afternoon Tea					16.45 - 17.15
Theme	Soil structural and hydrological systems and their management in the environment	Advances in soil science for improved decision making	Soil CRC Special Session	Effective management of nutrients and water		
Chair						
15.15 - 15.30	The effect of irrigation on soil water properties of Canterbury soils Veronica Penny <i>Manaaki Whenua - Landcare Research NZ</i>	Using open source technology to monitor soil health in real time, at low cost. Luke Richards* <i>Monash University AU</i>	The Soil CRC - An overview Michael Crawford <i>Soil CRC</i>	Quantifying and reducing nitrogen leaching under intensive vegetable production in temperate regions Fernando Avendano* <i>Massey University NZ</i>		17.15 - 17.30

TUESDAY 29 JUNE

Room					
15.30 - 15.45	Extending the interpretation of the C-TH Surface model for estimating water quality risk Thomas Redmond <i>University of Southern Queensland</i>	Spatial and temporal variability of soil organic carbon stocks in pastoral hill country landscapes Alec MacKay <i>Agresearch NZ</i>	Soil CRC Program 1 – Investing in high performance soils Vatherine Allan <i>Soil CRC</i>	Separating nutrient and non-nutrient effects of organic amendments on yield: experimental guidelines and case study Corinne Celestina <i>La Trobe University AU</i>	17.30 - 17.45
15.45 - 16.00	Development of soil-specific function for scaling hydraulic conductivity reduction using alkaline irrigation-water in HYDRUS model Aram Ali <i>University of Southern Queensland</i>	Accurately predicting low soil cadmium by combining portable x-ray fluorescence, visible-near-infrared and mid-infrared spectroscopy Gautam Shrestha* <i>Massey University NZ</i>	Soil CRC Program 2 – Soil performance metrics Richard Doyle <i>Soil CRC</i>	Release dynamics of Enhanced Efficiency Nitrogen Fertilisers (EENFs) in a sub-tropical field environment Megan Hunter* <i>UQ AU</i>	17.45 - 18.00
16.00 - 16.15	Re-engineering acidic-compacted agricultural landscape: a way forward to boost water and nutrient use efficiencies Dr Gaus Azam <i>Department of Primary Industries and Regional Development AU</i>	Sending sensor data from and through the soil Marcus Hardie <i>Utas / Tasmanian Institute of Agriculture AU</i>	Soil CRC Program 3 – New products for soil fertility and function Nathan Bolan <i>Soil CRC</i>	Responses of fertiliser N recoveries to N fertiliser rates in a tropical sugarcane system Naoya Takeda* <i>Queensland University of Technology AU</i>	18.00 - 18.15
16.15 - 16.30		The Australian Soil Classification, third edition. What has changed and why? Bernard Powell <i>Australian Soil Classification Working Group AU</i>	Soil CRC Program 4 – Integrated soil management solutions Lukas Van Zwieten <i>Soil CRC</i>	Root architecture of neighbouring trees in response to nutrient availability – using root-meta-barcoding Shahla Hosseini Bai <i>Griffith University AU</i>	18.15 - 18.30
16.30 - 16.45					18.30 - 18.45
16.45 - 17.30	Plenary Keynote: Professor Mark Patrick Taylor FRSN, Macquarie University “A citizen science approach to identifying trace metal contamination risks in urban gardens”				18.45 - 20.00

AEST	Wednesday 30 June 2021				NZ
8-00 - 17.00	FIELD TRIPS				10.00 - 19.00
AEST	Thursday 1 July 2021				NZ
	Start your day with an Espresso Coffee, kindly sponsored by ACIAR (open all day)				
Room					
8.45 - 9.00	Housekeeping				10.45 - 11.00
9.00 - 9.45	Virtual Plenary Keynote: Ronald Vargas, Secretary of the Global Soil Partnership, Land and Water Officer The Food and Agriculture Organization (FAO) "Promoting Sustainable Soil Management through the Global Soil Partnership" Kindly Sponsored by CSIRO				11.00 - 11.45
9.45 - 10.15	Morning Tea				11.45 - 12.15
Room					
Theme	The role of soils in future function of farming and catchment systems	Advances in macro/micro biology and lessons for improved soil function	Pedology, soil landscapes and spatial mapping: informing the future	Effective management of nutrients and water	
Chair					
10.15 - 10.30	Growing food, fibre and soil capital - future challenges Warwick Dougherty NSW Department of Primary Industries AU	Evaluating the Effects of Tunnelling Dung Beetle Species on Multiple Soil Functions Long Ma* Charles Sturt University AU	Modeling framework for assessing the effect of recent anthropogenesis on soil dynamic properties Mercedes Román Dobarco The University of Sydney AU	Soil aggregate size distribution affects moisture retention, soil-gas diffusivity, and nitrous oxide emissions Tim Clough Lincoln University NZ	12.15 - 12.30
10.30 - 10.45	Evidence and regenerative agriculture? It's time to dig a little deeper. Kirsty Yeates Australian National University AU	The potential for increasing earthworm functional diversity in New Zealand pastures Nicole Schon Agresearch NZ	3D Mapping of depth to sodicity constraint for cropping across the Murray-Darling Basin Liana Pozza The University of Sydney AU	Soil responses to introduction of treated waste water: planning for a cool green city Jason Reynolds Western Sydney University AU	12.30 - 12.45
10.45 - 11.00	Using land information and the Ecosystem Approach for farm planning and system design Estelle Dominati Agresearch NZ	Soil biological functions in controlled traffic systems in low rainfall regions in South Australia Gupta Vadakattu CSIRO Agriculture and Food AU	Assessment of the digital soil mapping products at different spatial supports Si Yang Han* The University of Sydney AU	Sustainable nitrogen management in Australia: globalization and localization Xia Liang The University of Melbourne AU	12.45 - 13.00
11.00 - 11.15	Soil condition, water quality and ecosystem service payments Mike Berwick Greencollar AU	Temporal soil ecosystem dynamics under biofumigant and green manure crops in intensive vegetable production systems Brianna Walker* University of Tasmania AU	Soil Water for Agriculture and Environment (SWAE) model Niranjan Wimalathunge The University of Sydney AU	Towards a Credit System to Solve Agriculture induced Nitrogen Pollution Globally Deli Chen The University of Melbourne AU	13.00 - 13.15

THURSDAY 1 JULY

Room					
11.15 - 11.30	Long-term Fallow Management Trial - 50 Years of Research and Future Opportunities Steven Reeves <i>Department of Environment and Science AU</i>	Resilience of soil functions to drying – a comparison of virgin, fallowed and cover-cropped soil Michael Rose <i>NSW Department of Primary Industries AU</i>		ON A FARM - SOIL MICROBES TASTE FOR TEABAGS TELL US ABOUT SOIL HEALTH Vanessa Pino <i>The University of Sydney AU</i>	13.15 - 13.30
11.30 - 11.45	Review of a Management zone approach to assist commercial decision making Catherine Botta <i>PCB Consulting Pty Ltd AU</i>	Impact of legume/cereal intercropping on soil functions and grain yields Shahnaj Parvin <i>Southern Cross University AU</i>		Understanding the amelioration processes of the subsoil application of organic amendments in western Victoria Jian Jin <i>La Trobe University AU</i>	13.30 - 13.45
11.45 - 12.00	On the right track: Controlled traffic in the low rainfall zone of south-eastern Australia Rebecca Mitchell <i>Agriculture Victoria AU</i>	Effect of land use on carbon cycling Karin Mueller <i>Plant & Food Research NZ</i>		Understanding the transformation of phosphorus in highly concentrated fertilizer bands Gregor Meyer <i>The University of Queensland AU</i>	13.45 - 14.00
12.00 - 13.00	Lunch				14.00 - 15.00
Room					
Theme	The role of soils in future function of farming and catchment systems	Advances in macro/micro biology and lessons for improved soil function	More Profit from Nitrogen Special session	Effective management of nutrients and water	
Chair					
13.00 - 13.15	A soil monitoring and data standard exemplar - south-west Victoria Nathan Robinson <i>Federation University AU</i>	Commonly synthetic antibiotics impact specific lineages of the protistan community in agricultural soils Bao-Anh Nguyen* <i>The University of Melbourne AU</i>	Valuing soil organic matter for effective nutrient management in high input dairy pastures Helen Suter <i>The University of Melbourne AU</i>	A preliminary study on phosphorus dynamics in submerged paddy soils P.D.B. Janani Palihakkara* <i>Massey University and University of Peradeniya NZ</i>	15.00 - 15.15
13.15 - 13.30	Creating a soil parent material map digitally Ho Jun Jang* <i>The University of Sydney AU</i>		N2O losses from urine patches following application of DMPP coated urea in dairy pastures David Rowlings <i>Queensland University of Technology AU</i>	A risk-based approach to helping sugarcane farmers optimise their nitrogen fertiliser management Peter Thorburn <i>CSIRO AU</i>	15.15 - 15.30
13.30 - 13.45	Application of Electromagnetic (EM) survey to inform site specific management in horticultural tree crops Conor Bingham <i>Verterra AU</i>	Transmission of antibiotic resistance genes in agricultural ecosystems Jizheng He <i>The University of Melbourne AU</i>	NUE indicators for the Australian cotton, grains, dairy and horticulture industries Diogenes Antille <i>Csiro Agriculture and Food AU</i>	An Ecotoxicological Approach to Predicting Fertiliser Toxicity Jacinta Dockerill* <i>The University of Adelaide AU</i>	15.30 - 15.45
13.45 - 14.00	Organic and inorganic nitrogen in Australian Alpine soils Samantha Grover <i>RMIT University AU</i>	Do pesticides affect soil nitrogen cycling? Jowenna Sim* <i>University of South Australia AU</i>	Controlled Release N versus Potentially Mineralisable N: The Showdown Lukas Van Zwieten <i>NSW DPI AU</i>	Carboxylated nanocellulose superabsorbent for retaining soil water Ruth Barajas* <i>Monash University AU</i>	15.45 - 16.00

THURSDAY 1 JULY

Room					
14.00 - 14.15		Nitrogen and phosphorus availability mediate microbial nitrogen mineralisation Bahareh Bicharanloo* <i>The University of Sydney AU</i>	Quantifying the lateral leaching of Nitrogen fertiliser in an irrigated cotton using 15N Jon Baird <i>NSW DPI AU</i>	The curious tale up the upside-down forest Mark Farrell <i>CSIRO</i>	16.00 - 16.15
14.15 - 14.30			Does excess nitrogen fertiliser affect in-crop nitrogen mineralisation in irrigated cotton soils? Graeme Schwenke <i>NSW Department of Primary Industries AU</i>		16.15 - 16.30
14.30 - 14.45			Irrigation deficit effects on soil inorganic nitrogen in alternate-furrow flood irrigated Australian cotton production systems Ben MacDonald <i>CSIRO</i>		16.30 - 16.45
14.45 - 15.15	Afternoon Tea				16.45 - 17.15
Theme	Soils, building capacity, society and culture	Advances in macro/micro biology and lessons for improved soil function	More Profit from Nitrogen Special session	Effective management of nutrients and water	
Chair					
15.15 - 15.30	The good dirt: Is exposure to good quality soil essential to your health? Craig Liddicoat <i>Department For Environment and Water (SA Govt) AU</i>	Comammox Nitrospira play an active role in nitrification of terrestrial ecosystem Chaoyu Li* <i>University of Melbourne AU</i>	Selecting controlled-release urea for sugarcane based on fertiliser nitrogen release and crop nitrogen uptake dynamics Weijin Wang <i>Department of Environment and Science AU</i>	Effect of land use on soil quality, trace element monitoring, and temporal change John Drewry <i>Manaaki Whenua - Landcare Research NZ</i>	17.15 - 17.30
15.30 - 15.45	New Zealand Soils: improving understanding and appreciation in the context of the NZ Soil Classification Megan Balks <i>Earthbrooke Views NZ</i>	Insights into how soil microbial diversity loss affects plant productivity Qinglin Chen <i>University of Melbourne AU</i>	Cotton roots respond to phosphorus and nitrogen fertiliser and irrigation management Clarence Mercer* <i>Department of Primary Industries</i>	Effects of solution pH on nodule formation and N ₂ fixation of chickpea and wild Cicer Shahana Sultana <i>Murdoch University AU</i>	17.30 - 17.45
15.45 - 16.00	A National Inventory of Soil Science Teaching – The Australian University Sector Cameron Leckie* <i>University of Southern Queensland AU</i>	Industrial development as a key factor shaping the resistome and microbiome in urban green spaces Zhenzhen Yan* <i>The University of Melbourne AU</i>	Dissolved phosphorus movement and balance within cotton fields Gunasekhar Nachimuthu <i>NSW Department of Primary Industries AU</i>	Engineered Phosphate Fertilizers with Dual-Release Properties Ivan Andelkovic <i>The University of Adelaide AU</i>	17.45 - 18.00

THURSDAY 1 JULY

Room					
16.00 - 16.15	Money (and Knowledge) in the Carbon Bank Jaimys Arnott <i>Department of Planning, Industry, and Environment AU</i>	Soil chemical and microbial recovery from environmental plantings in cleared agricultural landscapes in NSW, Australia Apsara Amarasinghe* <i>University of New England AU</i>	New Techniques to increase the throughput of fertiliser product screening: machine vision and microdialysis. Matt Redding <i>Matt Redding C/- Daf Queensland AU</i>	Impact of banding enhanced efficiency nitrogen fertilizers on nitrogen use efficiency in agriculture Chelsea Janke <i>University of Queensland AU</i>	18.00 - 18.15
16.15 - 16.30	Do we need to develop a new set of soil principles to engage cross-sector soil education Damien Field <i>The University of Sydney AU</i>	Measuring carbon and phosphorus addition effects on overall microbial carbon use efficiency using 18O tracers Kazi Mehnaz* <i>The University of Sydney AU</i>	DMPP coated urea increases pasture yields after long-term (3 years) application in a subtropical dairy pasture David Rowlings <i>Queensland University of Technology AU</i>	Increasing knowledge and profitability of cropping on ironstone gravel soils Francesca Brailsford <i>University of Western Australia AU</i>	18.15 - 18.30
16.30 - 16.45	A National Inventory of Soil Science Teaching – The Australian Vocational Education & Training Sector Cameron Leckie* <i>University of Southern Queensland AU</i>			The influence of soil moisture on N2 and N2O emissions from an intensive dairy pasture Arjun Pandey <i>The University of Melbourne AU</i>	18.30 - 18.45
Room					
16.45 - 17.30	<p align="center">Plenary Keynote: Matthew Evans, Former chef and food critic “Soil is Our Most Precious Resource and it’s Under Threat. Why Is Nobody Listening?”</p>				18.45 - 19.30
18.30 - 20.00	<p align="center">Conference Dinner - Cairns Convention Centre</p>				20.30 - 22.00

AEST	Friday 2 July 2021		NZ
	Start your day with an Espresso Coffee, kindly sponsored by ACIAR (open all day)		
Room			
8.45 - 9.00	Housekeeping		10.45 - 11.00
9.00 - 9.45	Plenary Keynote:		11.00 - 11.45
9.45 - 10.15	Morning Tea		11.45 - 12.15
Room			
Theme	Advances in macro/micro biology and lessons for improved soil function	Effective management of nutrients and water	
Chair			
10.15 - 10.30	Role of bacterial vs fungal decomposition of plant substrate on soil aggregation and carbon dynamics Hana Husain* <i>Center for Carbon, Water and Food AU</i>	Influence of rock dusts on C and N cycling in soils during a composting trial Bernhard Wehr <i>School of Agriculture and Food Science, The University of Queensland AU</i>	12.15 - 12.30
10.30 - 10.45	Understanding the microbiology behind transformation of coal spoil to functional soils in the Bowen Basin Guilherme Da Silva* <i>The University of Queensland AU</i>	Long term Conservation Agriculture increases sulphur pools in soils together with increased soil organic carbon Utpol Kumar* <i>Soil Resource Development Institute & AU</i>	12.30 - 12.45
10.45 - 11.00	Restoring Soil Microbial Community Composition Post Coal Mining Robert Scanlon <i>University of Newcastle AU</i>	Long-term fate of fertilizer sulfate- and elemental S in co-granulated fertilizers Fien Degryse <i>The University of Adelaide AU</i>	12.45 - 13.00
11.00 - 11.15	The continental atlas of soil and phyllosphere resistomes in natural ecosystems Hangwei Hu <i>University of Melbourne AU</i>	Low-cost 3D printed incubation chambers and Arduino sensor system for real-time determination of water potential Brendon Costello* <i>University of Melbourne AU</i>	13.00 - 13.15
11.15 - 11.30	Enzymes activity of soil treated by manure with Trichoderma spp. having plant growth promoting effect Waleed Asghar <i>University of Yamanashi</i>	Superhydrophobic Fertilizers - Nutrient Release and Degradation in Soil Roslyn Baird <i>Fertilizer Technology Research Centre, University of Adelaide AU</i>	13.15 - 13.30
11.30 - 11.45		Surface spreading a soil amendment immediately reduces P runoff risk in P saturated grazed soils Brad Degens <i>Department of Water and Environmental Regulation AU</i>	13.30 - 13.45
11.45 - 12.30	CONFERENCE CLOSE & AWARDS		13.45 - 14.30