



# CELEBRATING SOILS 2015

WA Soils Conference

## Program

### Sunday 6 September 2015

All day	Soil Judging competition, Mundijong
1800–2000	Registration and informal meet and greet Atrium Resort Hotel, Mandurah

### Monday 7 September 2015

0800–0900	Registration	
0900–0910	Conference opening <b>Tim Overheu</b> , President Soil Science Australia	
0910–0920	Welcome to Country <b>Harry Nannup</b> , Noongar Elder	
0920–0945	Keynote address <b>Major-General Michael Jeffery</b> , AC, AO (Mil), CVO, MC (Retd) National Advocate for Soil Health	Chair: Geoff Anderson
0945–1015	Keynote address: <i>Trials and Tribulations</i> <b>Trevor Syme</b> , Bolgart farmer and GRDC 2013 Grain Grower of the Year	Chair: Geoff Anderson

### Crop nutrition and plant-soil interactions – presented papers

Sponsored by CSBP

Chair: James Easton

1015–1025	<i>CSBP's whole shoot interpretation method diagnoses macro- and micro-nutrient deficiencies in broad-acre crops to improve soil test driven fertiliser decisions in Western Australia</i> <b>Andreas Neuhaus</b> and James Easton
1025–1035	<i>Opportunities for more efficient nutrient use</i> <b>Peta Richards</b> , David Rogers, Tilwin Westrup, Robert Summers, David Weaver and Martin Clark
1035–1100	Morning tea

### Crop nutrition and plant-soil interactions – presented papers (continued)

Sponsored by CSBP

Chair: James Easton

1100–1110	<i>Regional variations in subsoil cation levels- implications for predicting K response</i> <b>Richard Bell</b> and Qifu Ma
1110–1120	<i>More profit from crop nutrition II - Use of micronutrients; an evaluation of past and current research</i> <b>Ross Brennan</b> , James Easton, Andreas Neuhaus and Richard Bell
1120–1130	<i>Soil and plant testing combined with nutrients and alkalinity balance calculations for fine tuning grower's soil amendment decisions</i> <b>Geoff Anderson</b> , Martin Harries and Perry Dolling
1130–1140	<i>Understanding nutrient interactions to improve nutrient use efficiency in WA wheat cultivars</i> <b>Elliott Duncan</b> , Margaret Roper, Cathryn O'Sullivan and Mark Peoples
1140–1150	<i>Biological nitrification capacity in weeds: Wild radish, brome grass, annual ryegrass and wild oats decrease nitrification rates in their rhizospheres</i> <b>Cathryn O'Sullivan</b> , Kelly Whisson, Karen Treble and Philip Ward
1150–1200	<i>Potential growth response of kikuyu (<i>Cenchrus clandestinus</i>) to applied phosphorous and nitrogen on low PBI soils</i> <b>Ron Master</b> , D Rogers and A Ryder
1200–1210	<i>Lupin species differed in root growth and rhizosphere exudation in response to soil P deficit</i> <b>Yinglong Chen</b> , Kadambot Siddique and Zed Rengel
1210–1220	<i>Clay application to sands – effects on crop nutrition</i> <b>Richard Bell</b> , David Hall and Stan Sochacki
1220–1230	<i>Impact of legume rotations on phosphorus availability in the following wheat crop</i> <b>Deirdre Gleeson</b> , Michael Rose and Terry Rose
1230–1330	Lunch

## Monday 7 September 2015 (continued)

### Soil health and soil microbiology – presented papers

Sponsored by Australian Mineral Fertilisers

Chair: Lyn Abbott

1330–1340	<i>Biological Farming Programs can Enhance the Nutrient Use Efficiency of Phosphorus</i> <b>Paul Storer</b>
1340–1350	<i>Soil quality monitoring tools for farmers</i> <b>Daniel Murphy</b> , Frances Hoyle, Chris Gazey, Guy Boggs and Pauline Gazey
1350–1400	<i>Liming can reduce decomposition of soil organic matter in acid soils</i> <b>Samantha Grover</b> , Clayton Butterly and Caixian Tang
1400–1410	<i>Influence of the critical zone architecture on the soil microbiology on a lateritic hill at the UWA farm Ridgefield, Western Australia</i> <b>Matthias Leopold</b> and Deirdre Gleeson
1410–1420	<i>Influence of pH on soil N cycling and microbial functional guilds involved in organic and mineral N transformations</i> <b>Natasha Banning</b> , Lori Phillips, Mark Farrell, Deirdre Gleeson and Daniel Murphy
1420–1430	<i>Suppression of Fusarium Crown Rot in wheat by endophytic actinobacteria</i> <b>Margaret Roper</b> , Cindy Myers, Joanna Lee and Cathryn O'Sullivan
1430–1440	<i>Impact of pH on microbially driven plant residue decomposition in a semi-arid soil</i> <b>Deirdre Gleeson</b> , Hazel Gaza, Yoshi Sawada, Lori Phillips and Lynne MacDonald
1440–1450	<i>Interactions between phosphorus and nitrogen on colonisation of pasture plants by arbuscular mycorrhizal fungi</i> <b>Ahmed Alsharmani</b> , Lynette Abbott and Zakaria Solaiman
1450–1500	<i>Niche separation of ammonia oxidisers in Australian soils</i> <b>Sasha Jenkins</b> , Daniel Murphy, Ian Waite, Stephen Rushton and Anthony O'Donnell
1500–1530	Afternoon tea

### Presented posters

Chair: Richard Bell

1530–1534	<i>The use of electrical resistivity tomography in a small scale physical catchment model to evaluate the effectiveness of surfactants on water repellent agricultural soil</i> <b>Mary-Anne Lowe</b> , Matthias Leopold, Gavan McGrath, Falko Mathes and Daniel Murphy
1534–1538	<i>Carbon and nitrogen cycling under conservation agriculture practices in rice-based cropping systems in the Eastern Gangetic Plains (EGP)</i> <b>Md. Khairul Alam</b> and Richard Bell
1538–1542	<i>Soil constraints to urban agriculture in valley beds of Yaounde (Cameroon)</i> <b>Ibrahima Saidou</b> and Deborah Pritchard
1542–1546	<i>Ecophysiological responses of arid zone species to novel growth mediums and drought: Implications for restoration success</i> <b>Amber Bateman</b> , Wolfgang Lewandrowski, Jason Stevens and Miriam Muñoz-Rojas
1546–1550	<i>Water repellency under native vegetation of south-western Australia</i> <b>Mijan Uddin</b> , Richard Harper and David Henry
1550–1554	<i>Diagnosing multiple nutrient deficiencies that limit peanut growth and yield on sands in south-central coastal Vietnam</i> <b>Thaia Thinh Nguyen</b> , Surrender Mann and Richard Bell
1554–1558	<i>Modified incubation chamber set for measuring ammonia volatilization and nitrogen recovery</i> <b>Piumika Abesekara</b> , Kithsiri Dassanayake and Deli Chen
1558–1602	<i>Soil disturbance and water relations influence AM fungi, soil bacterial communities and plant growth</i> <b>Bede Mickan</b> , Lynette Abbott, Falko Mathes, Kadambot Siddique and Zakaria Solaiman
1602–1606	<i>Pasture production on three soil types with differing phosphorus holding capacities</i> <b>Rowan Maddern</b> , Dean Diepeveen, Deborah Pritchard and Bradley Smith
1606–1610	<i>Potential impact of 6 different lime sources on soil pH in a permanent annual pasture at 2 standardised rates</i> <b>Ron Master</b> , Arjen Ryder and Tim Overheu
1610–1614	<i>Building soil carbon and soil health with temperate perennial pasture species</i> Solaiman Zakaria, <b>Lynette Abbott</b> , Natasha Pauli, Robert Rex and Caroline Rex
1614–1618	<i>Research and opportunities to create healthy soils in Nepal</i> <b>Shree Prasad Vista</b>
1618–1628	General discussion

## Monday 7 September 2015 (continued)

1630–1715 Soil Science Australia (WA Branch) AGM

Boodja lecture

1800–1900 **Rob Fitzpatrick**, Professor, University of Adelaide  
*Making soil talk: The value of soil in solving criminal investigations*

MC Tim Overheu

1900–2200 Conference dinner

## Tuesday 8 September 2015

Field trip

0815–1800 Departs from jetty in front of Mandurah Performing Arts Centre and returns to Mandurah Performing Arts Centre. Sponsored by Clark Lindbeck and Associates

1800– Evening free

## Wednesday 9 September 2015

Keynote address

0830–0900 *Why the adoption of no-tillage in Australia has been so rapid, widespread and successful*

**Bill Crabtree**, agricultural consultant and McKell medal winner 2009

Chair: Kerry Regan

### Water repellent soils – presented papers

Sponsored by DAFWA

Chair: Kerry Regan

0900–0910 *Long-term impacts of one-off inversion on soil characteristics and crop productivity*

**Stephen Davies**, Derk Bakker, Craig Scanlan, David Hall and Frances Hoyle

0910–0920 *Quantifying changes to soil profiles following inversion with digital image analysis*

Craig Scanlan, **Stephen Davies**, Damian Priest and Gavin Sarre

0920–0930 *Thermal signatures of water repellent soils*

Abdulkareem Alsih, **Gavan McGrath**, Matthias Leopold and Daniel Murphy

0930–0940 *On-row seeding as a tool for managing water repellent sands*

Phil Ward, **Margaret Roper**, Ramona Jongepier and Shayne Micin

0940–0950 *Management of broad acre sub-soil compaction in the West Australian wheatbelt*

**James Hagan**, Bindi Isbister and Paul Blackwell

0950–1000 *Changing water properties of texture-contrast soils with clay delving: case studies in South Australia*

**Giacomo Betti**, Cameron Grant, Jock Churchman and Robert Murray

1000–1010 *Increased soil acidification rates under current farming systems on the Eastern and Lower Eyre*

*Peninsula*

**Brett Masters** and Brian Hughes

### Soil acidity – presented papers

Sponsored by DAFWA

Chair: Kerry Regan

1010–1020 *Prevention is better than cure — managing soil acidity in Western Australia*

**Chris Gazey**

1020–1030 *Assessment of direct soil survey for the creation of high resolution maps of soil acidity and nutrition in the South Stirlings Region of WA*

**Wes Lefroy** and Joel Andrew

1030–1040 *Emerging trends with treating soil acidity in South Australia*

**Brian Hughes**, Brett Masters and Andrew Harding

1040–1110 Morning tea

### Subsoil constraints – presented papers

Sponsored by DAFWA

Chair: Chris Gazey

1110–1120 *High soil sodicity and alkalinity cause transient salinity in south-western Australia*

**Ed Barrett-Lennard**, Geoff Anderson and Karen Holmes

1120–1130 *Sodic soils and gypsum application in WA – a review*

**David Hall**, Dennis van Gool and Phil Ward

1130–1140 *Digital soil modelling in Western Australia to make more detailed soil maps: top-down or bottom-up?*

**Karen Holmes**, Ted Griffin, Paul Galloway and Frank D'Emden

1140–1150 *Mapping subsoil constraints across a farm with geophysical and terrain data*

**Mike Wong**, Karen Holmes, Yvette Oliver, Frank D'Emden and Kathy Wittwer

Wednesday 9 September 2015 (continued)

General – presented papers

Chair: Karen Holmes

1150–1200	<i>Use of remotely sensed data and deep drilling to identify Pindan soils, La Grange Area, West Kimberley, WA</i> <b>Henry Smolinski</b> and Karen Holmes
1200–1210	<i>Investigating the impacts of groundwater irrigation on soil properties and pasture nutrition, Pilbara region of Western Australia</i> <b>Simon Yeap</b> , Sunil Samaraweera, Richard Bell and Richard Harper
1210–1220	<i>How working with planners is raising the profile of soil and land capability information in WA</i> <b>Angela Stuart-Street</b>
1220–1230	<i>Effects of soil amendments on infiltration and retention of water in sandy soils</i> <b>Gausul Azam</b> , Cameron Grant and Pieter Poot
1230–1240	<i>Soil hydrological properties spatial datasets of Victoria: I. Interim data for dairy grazing soils</i> <b>MA Rab</b> , M Davey, CD Aumann, DB Rees, S Aarons
1240–1250	<i>Kaolin: A much maligned soil mineral</i> <b>Bob Gilkes</b> and Nattaporn Prakongep
1250–1340	Lunch

Environmental impacts – presented papers

Chair: Gaus Azam

1340–1350	<i>Soil, sediment and street dust: An urban case study of the teaching–research nexus</i> <b>Andrew Rate</b>
1350–1400	<i>Sampling frequency effects estimates of annual Nitrous Oxide fluxes</i> <b>Louise Barton</b> , Benjamin Wolf, David Rowlings, Clemens Scheer, Ralf Kiese, Peter Grace, Katia Stefanova and Klaus Butterbach-Bahl
1400–1410	<i>Effectiveness of different mitigation strategies at reducing N<sub>2</sub>O emissions from semi-arid soils amended with manure</i> <b>Sasha Jenkins</b> , Bede Mickan, Ian Waite, Daniel Murphy and Anthony O’Donnell
1410–1420	<i>Looking beyond soil carbon; evaluating the role of perennial pastures as a tool to mitigate climate change in three different cropping environments</i> Susan Orgill, Gupta VVSR and <b>Phil Ward</b>
1420–1430	<i>Effect of dairy farm management practices on saturated hydraulic conductivity of Dermosols</i> <b>MA Rab</b> , S Aarons, DB Rees, M Davey and CD Aumann
1430–1440	<i>Assessing extensive acidification from acid sulfate soils on Gngangara Mound</i> <b>Brad Degens</b> and Hisayo Thornton
1440–1450	<i>Monitoring land management practice change in the NSW Mallee</i> <b>John Leys</b> and Terry Koen
1450–1500	<i>Monitoring soil erosion: Results from 6 years of roadside observations of paddock condition</i> <b>Justin Laycock</b>
1500–1510	<i>Measurement of WEPP erodibility parameters for Western Australian arid zone soils, and their estimation from soil physical properties</i> <b>Joseph Powers</b>
1510–1520	<i>An introduction to the new Critical Zone Observatory in the Avon River Catchment</i> <b>Matthias Leopold</b>
1520–1550	Keynote address <b>Penelope Wensley</b> , AC, Patron Soil Science Australia
1550–1610	Conference summary and student speaker prizes <b>Deborah Pritchard</b> , President Soil Science Australia, WA Branch
1610	Conference close

Chair: Deborah Pritchard

