



## Wednesday 9th February

9.00am - 9.10am Welcome & Opening Remarks - Prof Chris Anderson, *Director, Farmed Landscapes Research Centre*

9.10am - 9.15am Prof Paul Kenyon, *Head of School of Agriculture and Environment, Massey University*

### Session 1: Future Farming Opportunities

9.15am - 9.35am **Dr John Roche (Keynote Speaker)**

*Ministry for Primary Industries - Manatū Ahu Matua*

Research opportunities for Regenerating Aotearoa New Zealand

9.35am - 9.55am **Linda Lilburne (Invited Speaker)**

*Manaaki Whenua - Landcare Research*

Challenges and opportunities for agriculture under climate change

9.55am - 10.15am **Mavis Mullins (MNZM) (Invited Speaker)**

*Rangitāne, Te Atihaunui-a-Paparangi and Ngāti Ranginui; Massey University Alumnus*

Te Ao Māori and Agribusiness: giving effect to Te Mana o te Wai

10.15am - 10.25am **Val Snow / Tanira Kingi**

*AgResearch - Lincoln Research Centre / Kokiri*

Pohewa Pae Tawhiti – visualising horizons to support holistic land use decision-making

10.25am - 10.35am **Jacqueline Rowarth**

*Lincoln University*

Alternative proteins as part of future farming: the claims and the reality

10.35am - 10.50am **Discussion**

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### Morning Tea: 10.50am - 11.00am

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### Session 2: Farm Environment Planning

11.00am - 11.20am **Bryan Smith (Keynote Speaker)**

*Ministry for the Environment*

Freshwater Farm Plans

11.20am - 11.35am **Alec Mackay**

*AgResearch*

The value of subject specialists in farm planning

11.35am - 11.45am **Debbie Care / Mark Bridges**

*Agvice Ltd*

An interactive approach to Farm Environment Planning

11.45am - 11.55am **Greg Stevenson**

*Landkind*

Let's map out land environment planning: a new catchment approach to pan-sector farm environment planning

11.55am - 12.05pm **Duy Tran**

*School of Agriculture and Environment, Massey University*

Applying a landscape ecological approach and geodesign to inform the creation of future multifunctional, sustainable agricultural landscapes: a case study in New Zealand hill country

12.05pm - 12.15pm **John-Paul Praat**

*Groundtruth Ltd*

Integrating forestry and carbon farming into pastoral systems

- 12.15pm - 12.25pm **Kate Proctor**  
*Hawkes Bay Regional Council*  
A Framework for Assessing Potential Nitrogen Loss Risk from farms in Hawke's Bay's Tukituki Catchment
- 12.25pm - 12.35pm **Katrina Macintosh**  
*DairyNZ*  
Mitigation action prioritisation and resource tool for freshwater farm plans
- 12.35pm - 12.50pm **Discussion**

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### Lunch: 12.50pm - 1.15pm

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### Session 3: Catchment Perspectives

- 1.15pm - 1.30pm **Alastair Cole**  
*Ministry for Primary Industries - Manatū Ahu Matua - Sustainable Land Use Delivery team*  
Environmental, social and economic wellbeing – why MPI are supporting catchment communities across NZ
- 1.30pm - 1.45pm **Evan & Linda Potter**  
*National Ambassadors, BFEA, Central Hawkes Bay*  
Their BFEA Journey and collaboration with HBRC
- 1.45pm - 2.00pm **Roger Dalrymple**  
*Chairman, Rangitikei Rivers Catchment Collective*  
The RRCC and its successes
- 2.00pm - 2.10pm **Brendan Powell**  
*Hawke's Bay Regional Council*  
Developing Communities of Action Within Catchments
- 2.10pm - 2.20pm **Christine Finnigan**  
*Kapag Ltd*  
Nguturoa Catchment: Seeing, understanding, believing
- 2.20pm - 2.30pm **Britney Ford**  
*School of Agriculture and Environment, Massey University*  
Motivators, Barriers and Enablers of Biodiversity Protection in Motu New Zealand
- 2.30pm - 2.40pm **Selva Selvarajah**  
*eNviroKNOWLEDGE*  
Is our drinking water nitrate-nitrogen standard fit for purpose?
- 2.40pm - 3.00pm **Discussion**

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### Afternoon Tea: 3:00pm - 3.15pm

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### Poster Introductions

2 minute introductions followed by 45 minutes Q&A Session

- 3.15pm - 4.30pm **Gavin McEwen**  
*Farmax*  
Investigating Future Farming Systems
- Fredy Monserrate**  
*School of Agriculture and Environment, Massey University*  
Understanding the influence of nutrient management strategies in high-performance avocado orchards on fruit calcium status: Initial results
- James Wangui**  
*School of Agriculture and Environment, Massey University*  
Assessing the Impacts of Using Native Shrubs on the Marginal Portions of Sheep and Beef Hill Country Farms in New Zealand: A Bioeconomic Modelling Approach
- Natalia Martin**  
*School of Veterinary Science, Massey University*  
Horses, Grazing and Nitrogen in Soils

**Grace Chibuike**

*School of Agriculture and Environment, Massey University*

Persistence of nitrification inhibitors and their efficacy to reduce nitrous oxide emissions from contrasting pasture soils amended with urine

**Murray Lane**

*Ballance Agri-Nutrients*

Establishing Helicropped cover crops mid winter by surface sowing bird repellent treated seed

**Bawatharani Raveendrakumaran**

*School of Agriculture and Environment, Massey University*

Characterization of traffic induced compaction in controlled traffic farming (CTF) and random traffic farming (RTF) systems through multivariate analysis

**Matthew Taylor**

*Waikato Regional Council*

Further investigations underpinning hot-water extractable C (HWC) and hot water nitrogen (HWN) as soil quality indicators

**Ebony Davison**

*M.Sc Student, Massey University*

Rural catchments won't thrive if poles don't survive

**Roland Stenger (Presented by Aldrin Rivas)**

*Lincoln Agritech Ltd*

Combining surface water monitoring, age-dating, and parsimonious modelling to unravel water and contaminant pathways through catchments

**Kirsti Lovie**

*Fonterra*

Efficiency Insights To Identify Optimisation Opportunities

## Thursday 10th February

### Session 4: He Waka Eka Noa

- 8.30am - 8.50am **Kelly Forster**  
*Ministry for the Environment*  
An overview of the He Waka Eke Noa Partnership and the Pricing System development process
- 8.50am - 9.00am **Andrew Curtis**  
*Water Strategies Ltd*  
Designing an agricultural greenhouse gas Emissions Reporting System
- 9.00am - 9.10am **Tony van der Weerden**  
*AgResearch*  
Methodologies for greenhouse gas reporting and implications for farmer input requirements
- 9.10am - 9.20am **Erica van Reenen**  
*AgFirst Manawatu-Whanganui Ltd*  
Rewarding on-farm carbon sequestration in He Waka Eke Noa
- 9.20am - 9.30am **Mark Aspin**  
*Pastoral Greenhouse Gas Research Consortium*  
A stocktake of agricultural greenhouse gas mitigation technologies – what are the current and future options for New Zealand and how do they measure up to what is required?
- 9.30am - 9.40am **Ron Pellow**  
*Beef + Lamb New Zealand*  
Capturing benefits from documented, integrated farm planning
- 9.40am - 9.50am **Laura Kearney**  
*New Zealand Agricultural Greenhouse Gas Research Centre*  
Early adoption: supporting on-farm action to understand and reduce agricultural greenhouse gas emissions
- 9.50am - 10.10am **Discussion**

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## Morning Tea: 10.10am - 10.20am

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### Session 5: Agricultural GHG Accounting and Mitigation

- 10.20am - 10.30am **Michael Edmondson**  
*Synlait Milk Ltd*  
Innovate or procrastinate?: Incentivising farmers to start their GHG journey early
- 10.30am - 10.40am **Paul Mudge**  
*Manaaki Whenua - Landcare Research*  
Implementation of a national soil carbon benchmarking and monitoring system for agricultural land in New Zealand
- 10.40am - 10.50am **Aaron Wall**  
*University of Waikato*  
Continuous paddock-scale GHG measurements from grazed Waikato pastures on mineral and organic soils
- 10.50am - 11.00am **Ian Williams**  
*Pioneer Brand Products*  
Quantifying and mitigating greenhouse gas losses from typical maize cropping systems
- 11.00am - 11.10am **Matthew Highton**  
*MyNoke*  
Soil Microbiome Determines N<sub>2</sub>O Emission From Denitrification
- 11.10am - 11.20am **Matthew Highton**  
*MyNoke*  
Comparing greenhouse gas production across alternative organic waste management streams: vermicomposting, composting and landfill
- 11.20am - 11.30am **Liyin Liang**  
*Manaaki Whenua - Landcare Research*  
Combining eddy covariance measurements with modelling to understand the effects of management and environmental factors on CO<sub>2</sub> and N<sub>2</sub>O fluxes from a grazed pasture
- 11.30am - 11.40am **Nigel Meads**  
*Alltech New Zealand*  
The effect of exogenous enzyme supplementation on methane emissions of selected feedstuffs determined using an in vitro fermentation methodology
- 11.40am - 12.00pm **Discussion**

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## Lunch: 12.00pm - 12.30pm

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### Session 6: Agricultural GHG Mitigation and Waste Management

- 12.30pm - 12.40pm **Helwi Tacoma**  
*Headlands Consultants*  
Farm systems and diet modelling of Greenhouse gas emissions, Nitrogen losses and economic performance of differing diet and land use scenarios for a Waikato dairy farm
- 12.40pm - 12.50pm **Miko Kirschbaum**  
*Manaaki Whenua - Landcare Research*  
Reducing N fluxes to the environment by reducing feed N contents
- 12.50pm - 1.00pm **Chi Vi**  
*School of Agriculture and Environment, Massey University*  
Effective Proportion of Plantain in Mixed Pastures for Botanical Stability and Mitigating Nitrous Oxide Emissions from Cow Urine Patches
- 1.00pm - 1.10pm **Di Lucas**  
*Lucas Associates*  
INSETTING via On-Farm Mosaics

- 1.10pm - 1.20pm **Shreyasi Majumdar**  
*School of Agriculture and Environment, Massey University*  
Carbon and Water Footprint of Avocado Production in New Zealand
- 1.20pm - 1.30pm **Michael Quintern**  
*MyNoke*  
Reversing GHG Emission from Agriculture – Industrial vermicomposting of organic waste to sequester carbon in agricultural soils
- 1.30pm - 1.40pm **Charlotte Robertson**  
*MyNoke*  
Which came first, the chicken or the worm? Designing a symbiotic system in agriculture
- 1.40pm - 1.50pm **Nuusiku Nakwafila**  
*University of Canterbury*  
Potential to divert biowastes generated from food processing industries away from landfills
- 1.50pm - 2.10pm **Discussion**

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## Afternoon Tea: 2.10pm - 2.30pm

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### Session 7: Soil Conservation and Management

- 2.30pm - 2.40pm **Mike Beare**  
*Plant and Food Research*  
Predicting in-field N mineralisation to improve N fertiliser management of annual crops
- 2.40pm - 2.50pm **Wei Hu**  
*Plant and Food Research*  
When no tillage benefits soil physical health and ecosystem services?
- 2.50pm - 3.00pm **Danilo Guinto**  
*Auckland Council*  
Changes in soil quality under different land uses in the Manukau Harbour catchment area, 1995-2017
- 3.00pm - 3.10pm **Jeff Morton**  
*MortonAg*  
The effect of change in summer and autumn rainfall on legume presence in the following spring in East Coast hill country
- 3.10pm - 3.20pm **Murray Lane**  
*Ballance Agri Nutrients*  
Preventing soil loss from hill country cropping, comparing Helicropping to cultivated established crops
- 3.20pm - 3.30pm **Paddy Shannon**  
*Shannon Agricultural Consulting*  
The effect of different liming strategies on soil properties to 600 mm depth over time on a deep raw peat
- 3.30pm - 3.40pm **Raphael Spiekermann**  
*School of Agriculture and Environment, Massey University / Landcare Research*  
Quantifying the effect of trees on landslide erosion and sediment delivery at farm scale
- 3.40pm - 3.50pm **Thomas Mackay-Smith**  
*School of Agriculture and Environment, Massey University*  
Kānuka as a silvopastoral tree for low producing hill country
- 3.50pm - 4.10pm **Discussion**

## Friday 11th February

### Session 8: Contaminant Attenuation: In field and Edge of field practices (a)

- 8.30am - 8.40am **Elise Legarth**  
*Farmed Landscapes Research Centre, Massey University*  
Modelling nitrate loads to rivers - integration of farm-scale and catchment-scale models including spatially variable nitrate attenuation capacity
- 8.40am - 8.50am **Ranvir Singh**  
*Farmed Landscapes Research Centre, Massey University*  
Modelling nitrate loads to rivers – evaluation of in-field and catchment-scale mitigation measures
- 8.50am - 9.00am **Aslan Wright-Stow / Chris Tanner**  
*DairyNZ*  
New guidelines for edge-of-field constructed wetlands
- 9.00am - 9.10am **Brandon Goeller**  
*National Institute Of Water & Atmospheric Research Ltd (NIWA)*  
Quantifying and demonstrating constructed wetland contaminant attenuation from mixed agricultural runoff
- 9.10am - 9.20am **Suha Sanwar**  
*School of Agriculture and Environment, Massey University*  
Seepage wetland hydrology characterization for nitrate attenuation in pastoral hill country
- 9.20am - 9.30am **Lee Burberry**  
*DairyNZ*  
Results from an in-stream woodchip denitrifying bioreactor field trial in South Canterbury
- 9.30am - 9.40am **Reza Moghaddam**  
*University of Waikato*  
Carbon dosing increases denitrifying bioreactor' nitrate removal performance: A field study in New Zealand
- 9.40am - 9.50am **Aldrin Rivas**  
*Lincoln Agritech Ltd*  
High-frequency spatiotemporal data improves estimates of nitrate removal performance and understanding of processes in woodchip bioreactors
- 9.50am - 10.10am **Discussion**
- 10.10am - 10.15am **Hon Damien O'Connor**  
*Minister of Agriculture*

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### Morning Tea: 10.15am to 10.30am

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### Session 9: Contaminant Attenuation: In field and Edge of field practices (b)

- 10.30am - 10.40am **Rebecca Stott**  
*National Institute Of Water & Atmospheric Research Ltd (NIWA)*  
Taming the flow; Can we use Detainment Bunds to mitigate microbial contaminant loss in overland flow?
- 10.40am - 10.50am **John Paterson**  
*Phosphorus Mitigation Project Inc. – Rotorua*  
How risky is intercepting farm run-off? Assessing the risk of proposed storm water Detainment Bund PS120 © sites on NZ farms
- 10.50am - 11.00am **Bill Carlson**  
*AgResearch*  
"Floating Farms" - Using farm drains for growing productive plants
- 11.00am - 11.10am **John Bright**  
*Aqualinc Research Ltd*  
N-Wise Irrigation when water supply is reliable

- 11.10am - 11.20am **Edith Khaembah**  
*Plant and Food Research*  
Modelling nitrogen losses during pasture renewal in Edendale, Southland, New Zealand
- 11.20am - 11.30am **Hamish Lowe**  
*Lowe Environmental Impact*  
A new opportunity for intensive farming using wastewater to improve the environment
- 11.30am - 11.40am **Rupert Craggs**  
*National Institute Of Water & Atmospheric Research Ltd (NIWA)*  
Agricultural drainage treatment and nutrient recovery using Filamentous Algae Nutrient Scrubbers
- 11.40am - 11.50am **Thi Nguyen**  
*School of Agriculture and Environment, Massey University*  
Effect of plantain content in ryegrass based pastures on nitrate leaching and nitrogen balance of a pastoral dairy system
- 11.50am - 12.00pm **Jamie Thompson**  
*Ravensdown*  
Measuring real time nitrate leaching from a tile drained Hawke's Bay onion field
- 12.00pm - 12.20pm **Discussion**

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**Lunch: 12.20pm - 12.45pm**

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### Session 10: Smart Tools and Technologies

- 12.45pm - 12.55pm **Craig Depree**  
*DairyNZ*  
New web-based tool for characterization of historic variation in water quality state and assessing maintenance of current state
- 12.55pm - 1.05pm **Linda Lilburne / Sam Carrick**  
*Manaaki Whenua - Landcare Research*  
S-map related research highlights
- 1.05pm - 1.15pm **John Drewry**  
*Manaaki Whenua - Landcare Research*  
Improving irrigation efficiency using soil water management and proximal soil sensing
- 1.15pm - 1.25pm **Chandra Ghimire**  
*AgResearch*  
Proximal sensing of surface water ponding for improved application of irrigation water
- 1.25pm - 1.35pm **Hsiang-En Wei**  
*School of Agriculture and Environment, Massey University*  
Evaluation of the effects of using UAV-based spectral data and environmental information on the estimation of grapevine water status at canopy level
- 1.35pm - 1.45pm **Muhammad Wasim Iqbal**  
*School of Agriculture and Environment, Massey University*  
Validation of an Accelerometer Sensor-Based Collar for monitoring Grazing and Rumination Behaviours in Grazing Dairy Cows
- 1.45pm - 2.00pm **Discussion**

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**Concluding remarks: 2.00pm - 2.15pm**

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**Thank you to the following sponsors for their ongoing support:**

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