

Recommendations



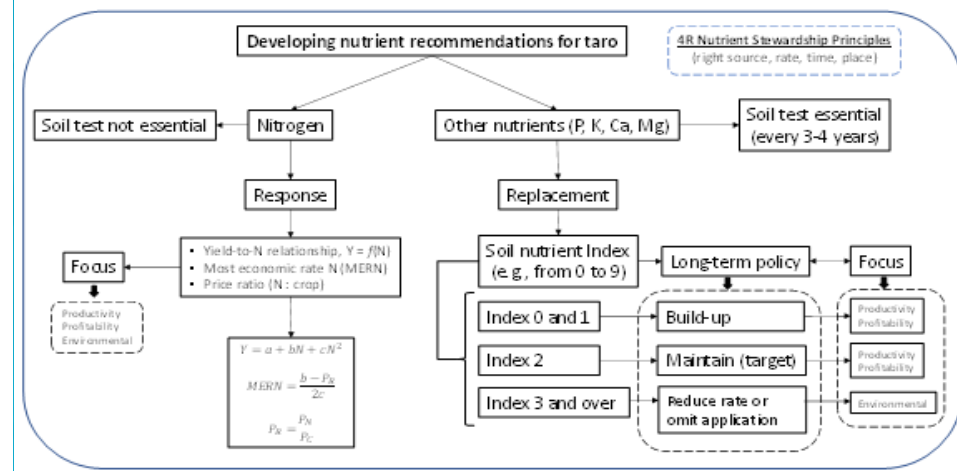
Solutions

- To overcome fractured and contradictory advice that clouds the broad extension system a or a group of trusted advisor(s) needs to be front and centre.
- Staff need both facilitation skills to diagnostic skills
- Non-traditional extension pathways need to be developed
 - Dr Soils, Soil health card
 - Regional relevant
 - 5 different cultures
 - Environmentally different
 - Digital pathways to connect directly with the smart phone population



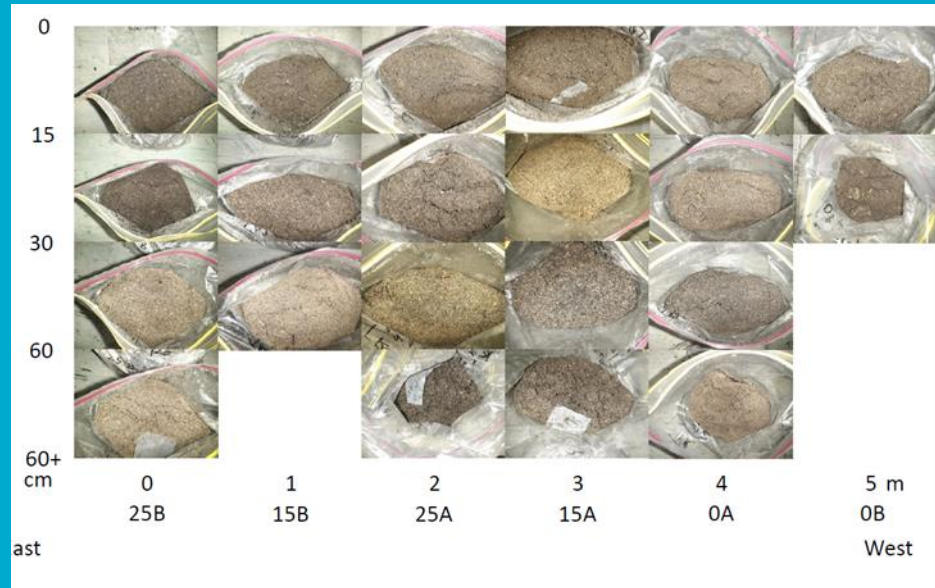
Farming system nutrient and carbon management

- Improve macro and micro nutrient budgeting
- Link to crop and pasture quality
- Extension frameworks
- Not just taro but for the farming system



Farming system nutrient and carbon management

- Organic matter levels have declined, strategies to reverse need to be developed
- Options for the development of voluntary carbon schemes





GxExM and farm management

- Investment into GxExM research
- Weed management
- Tillage management
- Crop rotations
- Placement



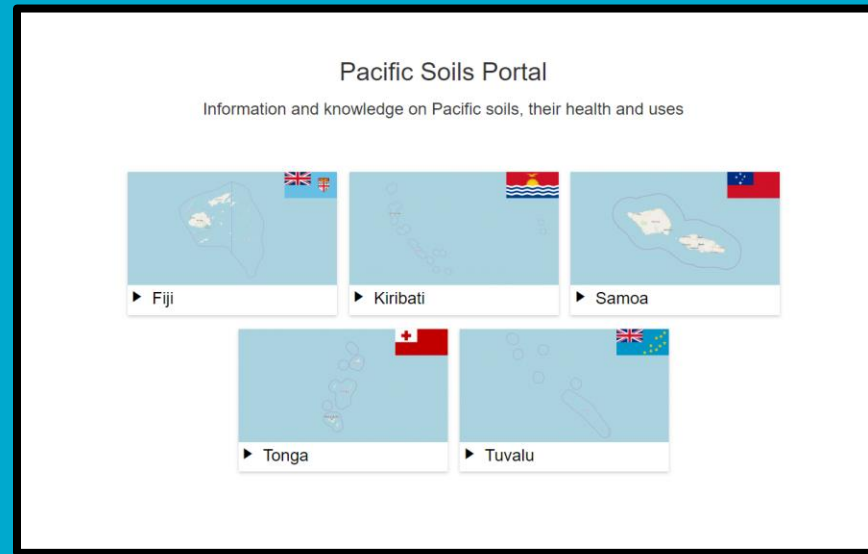
Rapid Sensing

- MIR spectroscopy has been successfully used to augment soil laboratory analysis in Fiji
- Next generation NIR and pXRF hand-held sensing should be explored
- Rapid sensing need to be considered within a broader Pacific Island Countries and Territories laboratory impact and business plan



Pacific Soil Portal

- Should be transferred to SPC to improve impact throughout the PICTs, connections to Digital Earth Pacific and the Datahub
- Should be used to develop new soil mapping and land capability mapping in subregions for land use planning.
- Link to the soil health card initiatives in Fiji and Tonga.
- USP teaching





Farming system modelling

- The taro module in APSIM was developed by Crimp et al. (2017) using data collected in Fiji, Vanuatu, and Tonga
- Significant savings in field-based experimental work could potentially be realised if this was, in part, replaced by virtual trials, leaving field trials for verification of modelling outcomes.

A screenshot of the APSIM website. The top section has a green background with a field of crops. The title "APSIM: The Leading Software Framework for Agricultural Systems Modelling and Simulation" is in white. Below it is a paragraph of text describing the software. A green button labeled "DOWNLOAD APSIM" is visible. Below this is a "News" section with three items: "Online Seminar Series – Variance decomposition of model outputs" with a photo of taro plants, "New Paper: The potential for refining nitrogen fertiliser" with a heatmap, and "New paper on Parameterising soils for APSIM" with a diagram of soil layers and a laptop showing the APSIM interface.

APSIM: The Leading Software Framework for Agricultural Systems Modelling and Simulation

The Agricultural Production Systems sIMulator (APSIM) is internationally recognised as a highly advanced platform for modelling and simulation of agricultural systems. It contains a suite of modules that enable the simulation of systems for a diverse range of plant, animal, soil, climate and management interactions. APSIM is undergoing continual development, with new capability being added to APSIM Next Generation. Its development and maintenance is underpinned by rigorous science and software engineering standards. The APSIM Initiative was established in 2007 to promote the development and use of the science modules and infrastructure software of APSIM. The current members are CSIRO, The State of Queensland, The University of Queensland, AgResearch Ltd. (NZ), University of Southern Queensland, Iowa State University, (US) and Plant and Food Research (NZ)

[DOWNLOAD APSIM](#)

News



Online Seminar Series – Variance decomposition of model outputs



New Paper: The potential for refining nitrogen fertiliser



New paper on Parameterising soils for APSIM



Thank you

We would like to acknowledge ACIAR and the Australia Federal Government in enabling the pathway to impact.

To my colleagues thank you for all your effort over the last 4 years.

