

# The how's and whys of soil information used in OVERSEER

David Wheeler<sup>1</sup>

<sup>1</sup>*Agresearch*

Within OVERSEER® Nutrient budgets model, there is a range of soil data used. This data can be categorised as direct input data, and parameter data that is associated with a soil description. The soil data can also be broadly divided into 3 categories of use, namely to describe soil water properties, pasture responses and nutrient contents in pasture, and process such as cation weathering and adsorption. The expansion of the model to include S-map data that describe soil water properties will be used to illustrate the importance of good soil data to the model.

There are 3 questions that are often asked in relation to soils: 1) what is the best spatial scale to collect data; 2) why can't I use another type of soil test; and 3) what other soil test data is needed? The answer to the first two relates to what the soil input data has been used for, and the information available from research. Calibrated responses such as pasture responses are based on soil tests, and hence the soil tests used are those that pasture responses have been calibrated against. The information that defines parameters is typically only known at a broad soil description level. The spatial scale is also dependent on the scales of different operations, for example, the scale that soil data is available compared to scale that animal movements can be recorded. The biggest gap currently is understanding the site-specific immobilisation and denitrification potentials. It is unclear whether the modelling of these processes can be improved using soil test(s), or a combination of modelling and soil tests.