

Kaipara Water demonstration sites soil testing

Soil samples were taken from both demonstration sites pre-planting and sent to RJ Hills for analysis.



Why do you test soil?

Soil testing takes the guess work out of nutrient management, making optimal growth a lot more cost effective. This is particularly important because much of New Zealand pastoral soils are deficient in phosphorus, sulphur, and to a lesser extent, potassium. Sometime trace elements are also found to be deficient. Historical use of soil can also impact the nutrient levels, with soils under intensive cultivation often having abnormal levels due to previous management practices and fertiliser programmes.

Through soil testing you can:

- Measure whether soil nutrient levels are high enough to sustain the desired level of plant growth.
- Indicate existence of any deficiency, excess, or imbalance of major nutrients.
- Provide a scientific basis on which to assess fertiliser and lime requirements of crops, pastures, and turf.
- The Organic Soil Profile measures the soil quality, testing the soil organic matter, available nitrogen, total nitrogen, and carbon to nitrogen ratio.
- The Hot Water Extractable Carbon test is recommended as a good indicator of microbial activity in the soil, as it is highly correlated with microbial biomass carbon and aggregate stability.
- A useful set of tests for assessing soil health would include Basic Soil, Sulphate-S, Anion Storage Capacity, Organic Soil Profile and Hot Water Extractable Carbon.

Testing for heavy metal contaminants such as total cadmium and total copper may be important in some instances.

Soil tests measure only a fraction of the total pool of nutrients available to plants (immediate and long term) so it is important that standard New Zealand methods of sampling and soil analysis are used so the results are meaningful and can be related to plant growth under New Zealand conditions.

***Information taken from:** <https://www.hill-laboratories.com/analytical-testing/soil-testing/ag-hort-soil/>

How is the soil tested?



Soil Sampling Time: Prior to crop establishment.

Core Depth: 15cm.

Collect From: Randomly throughout the area to be planted

Quantity per Sample: 12 - 20 cores.

Recommended Tests: Basic Soil (BS), Sulphur profile (S), Available Nitrogen (AN) These tests were all taken on both demonstration sites.

Read more at: www.ravensdown.co.nz/services/testing/soil-testing

Based on the results of soil tests fertiliser recommendations were received from two fertiliser suppliers, along with quotes.

Kaipara Water demonstration site one: Maungonui Bluff (Te Roroa farm)
Base Fertiliser application was required. No lime required. pH 6 Base fertiliser: Super Phosphate @4500kg/ha
Kaipara Water demonstration site two: Te Kopuru (private landowner)
Lime 2 tonne/hac was required to raise the pH from 5.7 to mid-range. Base Fert: Super Phosphate 200kg/Ha

Fertiliser blends will also be applied to each individual crop depending on the crop's requirements for optimal growth. For further information on specific crop requirements check out: www.hill-laboratories.com/client-resources-2/crop-guides/