

RODNEY REPORTING AREA

Rodney Local Board

STATE OF AUCKLAND SOIL REPORT CARD

2018



SOIL QUALITY



TRACE ELEMENTS



Soil quality: Soil samples are tested at 51 sites within the reporting area for seven key chemical, physical and biological factors including:

- soil acidity
- amounts of carbon and nitrogen
- plant available nitrogen
- plant available phosphorus
- soil bulk density
- air filled space (macroporosity).

Trace elements: Soil samples are tested for eight trace elements including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc.

Grades will vary for individual sites, land use and soil type.

QUICK FACTS

THE REPORTING AREA IS
57%
PASTURE LAND
(OR 134,489 HECTARES)

LAND USE CHANGE FROM TRADITIONAL DAIRY AND DRYSTOCK FARMS TO LIFESTYLE BLOCKS IS INCREASING AND RURAL FRAGMENTATION IS BECOMING INCREASINGLY PREVALENT

18%
TREE PLANTATIONS

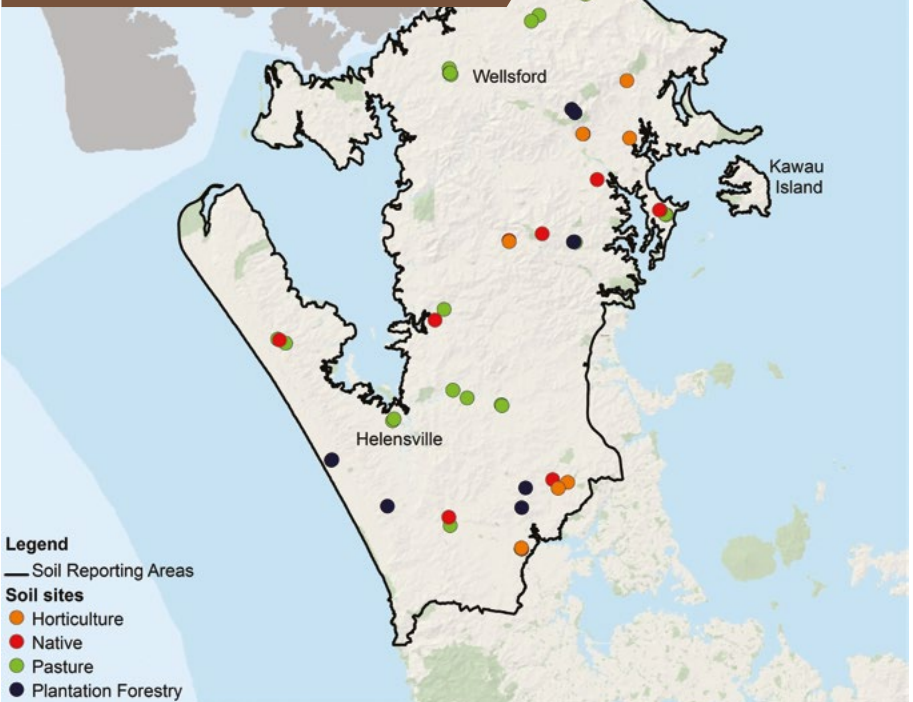
16%
NATIVE BUSH OR SCRUB

FOREST (INDIGENOUS AND PLANTATION) AND URBAN SITES WERE THE FOCUS OF 2016 AND 2017 SOIL SAMPLING

SOIL COMPACTION AND HIGH CONCENTRATIONS OF PLANT AVAILABLE PHOSPHOROUS CONTINUE TO BE THE INDICATORS OF MOST CONCERN



MONITORING SITES – RODNEY REPORTING AREA



MONITORING BACKGROUND

Auckland Council monitors soil quality to observe and report any changes that occur in the extent, quality or health of the region's soil resources. Soil quality refers to the ability of the soil to sustain biological production (for example the amount of tiny microbes in the soil), maintain environmental quality (for example water purification), and promote plant and animal health.

Recommended guidelines for soil quality are those defined by nationwide studies and trace element background concentrations are taken from a regional study (as outlined in ARC TP 153). Soil quality guidelines are refined over time as a result of new research and continuous monitoring; therefore changes can be reflected in overall grade scores.

MONITORING RESULTS

Data used to produce this report card includes:

- number of sites – 51
- land use/last year sampled (number of sites)
 - horticulture/ 2013 (9 sites)
 - pasture/2014-15 (26 sites)
 - plantation forestry/2016 (9 sites)
 - indigenous (native)/2017 (7 sites).

Summary of monitoring results

Soil test	Number of sites outside guideline range
Soil acidity	1/51
Total carbon	6/51
Total nitrogen	15/51
Plant available nitrogen	6/51
Plant available phosphorus	22/51 (16 above)
Bulk density	6/51
Air filled space (macroporosity)	30/51 (26 low and compact)
Trace elements	7/51 (4 above for cadmium)

MONITORING INTERPRETATION

Test results reveal that Rodney's soils have some health issues. The main issues are:

- a high percentage of sites are compacted by stock treading or machinery (low macroporosity). Compacted soils can have both environmental implications (nutrient loss from surface runoff) and harvest/pastoral yield implications
- a high percentage of sites have high plant available phosphorus concentrations, due to excessive fertilisation. A plant can only use a certain amount of phosphorus and anything in excess risks being lost in surface runoff
- a high percentage of sites have cadmium concentrations above the amount that normally occurs. This is due to long-term phosphorus fertiliser application. Excessive cadmium concentrations can enter the food chain and potentially have human health implications
- a small number of horticultural sites also have copper concentrations above the amount that normally occurs. This is likely due to the utilisation of copper-based fungicides.



FIND OUT MORE

This report card is part of a series prepared by the Auckland Council's Research and Evaluation Unit, which undertakes monitoring and research to provide information and evidence to inform the council's activities and reporting. More report cards can be found at: aucklandcouncil.govt.nz/environment. The report card series includes reporting on freshwater, terrestrial, marine, air, soil, capacity for growth, demographics and quality of life.

For more information: e-mail rimu@aucklandcouncil.govt.nz or call us on 09 301 0101.

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