State of the Environment **Report Card 2017**

What is our soil quality like?

HBRC currently monitors soil quality across 86 sites, looking at a combination of five land use classes across more than 40 soil types

The aim of the monitoring is to detect and report any changes in the health of the region's soil resources. Soil quality is the capacity of a soil to sustain biological productivity (e.g. support soil microbes), maintain environmental quality (e.g. filtering of water) and promote plant and animal health.

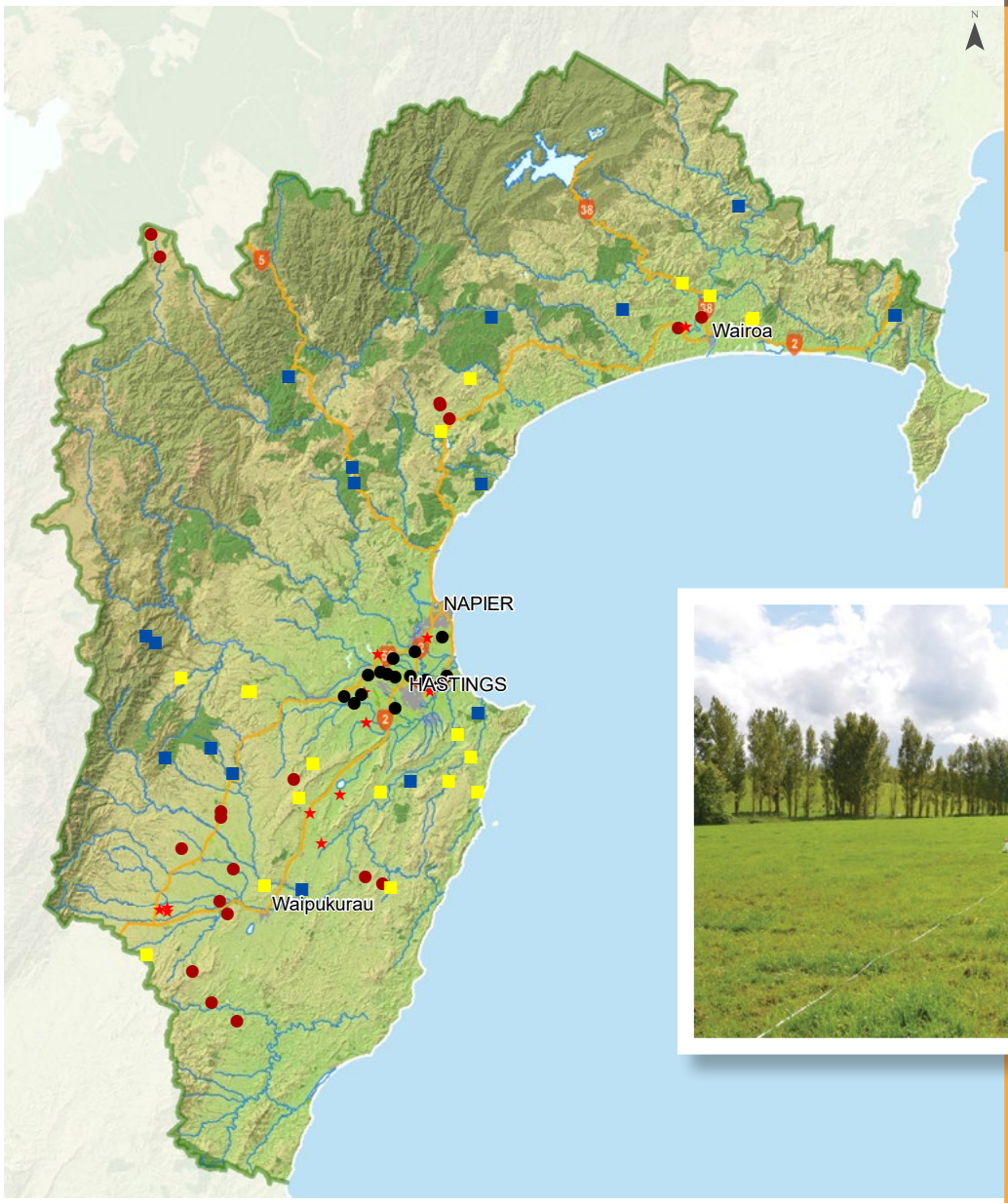
The land use types that we monitor are:

- Extensive pasture (mainly sheep & beef)
- Intensive pasture
- Forestry (commercial and native)
- Cropping
- Orchards & vineyards

QUICK FACTS

Intensive land use covers about **6%** of the total land area of Hawke's Bay and of all **12%** agricultural land.

It can take **1000** years to create 2-3cm of top soil



HBRC monitors 86 sites across Hawke's Bay. The number of sites is expected to double in the coming years.

Soil Quality Monitoring Sites - Land Use

- Cropping
- Extensive Pasture
- Forestry
- Intensive Pasture
- Orchard/Vineyard

HBRC staff member taking soil cores along a 50 m transect.

Soil Quality

State of the Environment **Report Card 2017**

Focusing on intensive pasture

Each year HBRC focuses its monitoring on one land use type -

In 2017 that was intensive pasture (mainly bull-beef and dairy farms). These farms generally have greater fertiliser inputs and feed supplements to support higher stocking rates

Soil samples are collected from 19 sites within Hawke's Bay and tested for seven key soil chemical, physical and biological factors including:

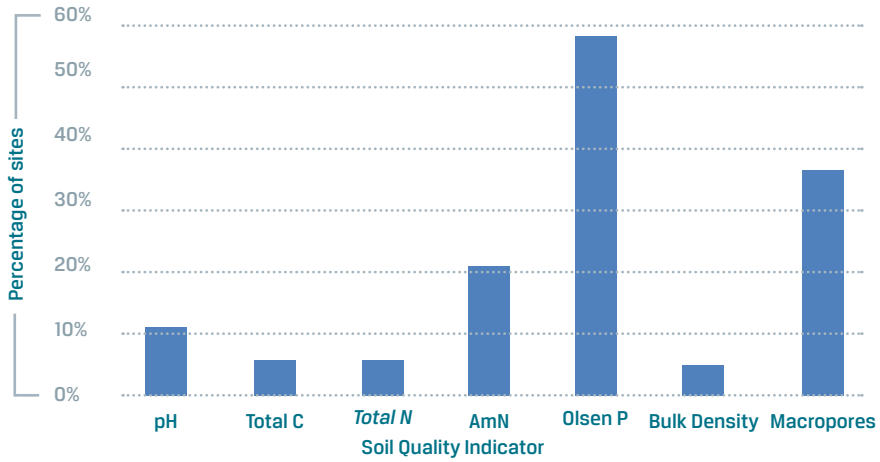
- pH
- Concentrations of carbon and nitrogen
- Plant available nitrogen
- Plant available phosphorus (Olsen P)
- Soil density
- Air filled space (macroporosity)

Overall, the soil quality on intensive pasture farms in Hawke's Bay is moderate with 80% of tested soil quality indicators falling within guideline ranges across the 19 sites.

Two of the biggest soil quality issues identified on Intensive Pasture farms were low macroporosity and Olsen P values outside of guideline values at some sites:

- **Macroporosity** is a measure of the volume of large pores in the soil. A large proportion of sites (37%) had compacted soils, indicated by low macroporosity. Compacted soils limit air supply to roots and reduce infiltration of water and nutrients through the soil. The reduction in infiltration can also mean an increase in surface flow, which can cause soil erosion and possible transport of nutrients directly to water bodies.
- **Olsen P** is a measure of plant available phosphate in the soil. Some sites had low Olsen P values (<20 mg/L), meaning pasture production/cover may be reduced, while some sites had very high Olsen P values (>50 mg/L), meaning the risk of phosphorous loss to waterways is increased.

The proportion of sites NOT meeting target ranges for key indicators



QUICK FACTS

1 cup of soil contains about 7 billion micro-organisms and about 6,000 different species

HBRC monitors **19** intensive pasture sites around the region

Recording a soil profile

Find out more

Hawke's Bay Regional Council monitors our land, water and air.

We use this data to inform our work with communities to improve and protect the environment.

Each year we develop a series of report cards to provide you with a snapshot of how our environment is tracking.

For more details including the full technical reports **visit** www.hbrc.govt.nz (search: report search)

For up to the minute monitoring results from Hawke's Bay and other parts of the country **visit** www.lawa.org.nz

HAWKE'S BAY REGIONAL COUNCIL
www.hbrc.govt.nz