Bioeconomy Science Institute™

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FACT SHEET

Environmental Chemistry Laboratory

Who are we?

- The Environmental Chemistry Laboratory is part of the Bioeconomy Science Institute (BSI) and based in Palmerton North, New Zealand (NZ).
- We provide a range of biochemical and chemical analyses of plants, soils and water supporting research within our Institute.
- We work with clients across NZ and abroad, including national, regional and local government, universities, independent consultants, and businesses.

Accreditations and status

The laboratory is accredited to international standard ISO/IEC 17025:2018 by International Accreditation New Zealand (IANZ). This accreditation is globally recognised and provides assurance that we meet international quality standards in testing and reporting.

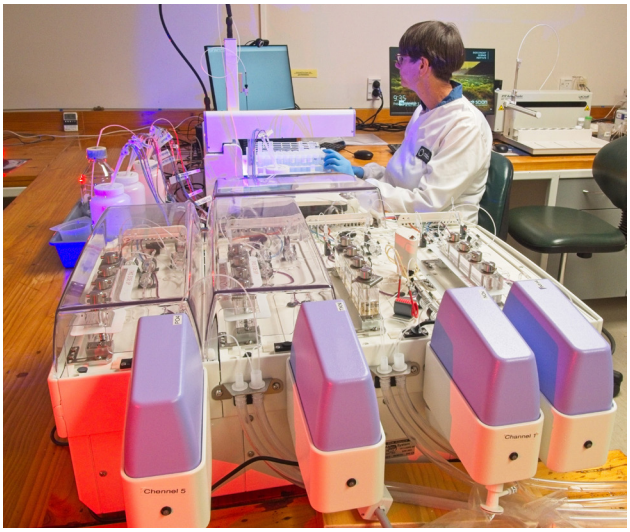
We participate in regular inter-laboratory comparison programmes (where multiple laboratories test the same samples), giving confidence in the accuracy of our results.

The laboratory is approved by the Ministry of Primary Industries (MPI) as a 'transitional facility' (as defined in the Biosecurity Act 1993), with a permit to import for analysis plant and soil laboratory specimens from countries around the world.

We have extensive experience in environmental analysis – see overleaf for recent examples of how we've supported a wide range of clients.

For further descriptions and a full list of available tests see our website:

landcareresearch.co.nz/partner-with-us/laboratories-and-diagnostics/environmental-chemistry-laboratory



Our Testing:

Soil quality indicators

Most NZ councils use monitoring schemes to assess soil quality under land uses such as forestry, cropping, horticulture, dairy, and drystock. They monitor these uses because some activities can impact soil quality or create environmental issues. Our laboratory can test for soil quality indicators such as acidity, total carbon and nitrogen, mineral and potentially mineralisable nitrogen, and plant-available phosphorus. We also offer new tests such as hot water-extractable carbon and nitrogen.

Carbon storage and monitoring

Soils are large carbon reservoirs, so small increases or decreases in soil organic carbon (SOC) stocks could have significant impacts on carbon footprints. Our laboratory is performing carbon and nitrogen testing for a national soil carbon monitoring programme which is benchmarking SOC stocks in different NZ land uses and monitoring how those stocks change with time.

S-map

S-map (https://smap.landcareresearch.co.nz/) is a soil-mapping tool used throughout NZ by consultants, councils and landowners. Its uses include for crop/pasture management, fertiliser recommendations, nutrient budgeting and irrigation management. Our laboratory provides data for many parameters S-map uses, including pH levels and phosphorus retention.

Wetlands monitoring

Soils play an important role in wetlands, cycling nutrients, regulating water movement and storage and providing a habitat for plants, microbes, and macroinvertebrates. Our laboratory tests wetland soils for water content, pH and electrical conductivity, providing information used in understanding, monitoring, and restoring these critically important ecosystems.

Plant quality

Our laboratory tests for plant nutrients including carbon, nitrogen, phosphorus, potassium, calcium and magnesium, as well as structural components like fibre, cellulose and lignin. Our data have been used in national and international research including decomposition and nutrient cycling studies, investigating beetle population establishment, and assessing the palatability of native tree leaves to browsers.

Nutrient movement

Agricultural intensification typically includes irrigation to increase pasture and crop yields. Irrigation can increase nutrient losses and affect nutrient cycling and soil health. Our laboratory recently performed analyses of lysimeter leachate as part of an ongoing project to quantify losses of nitrogen and phosphorus through leaching.

For more information

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