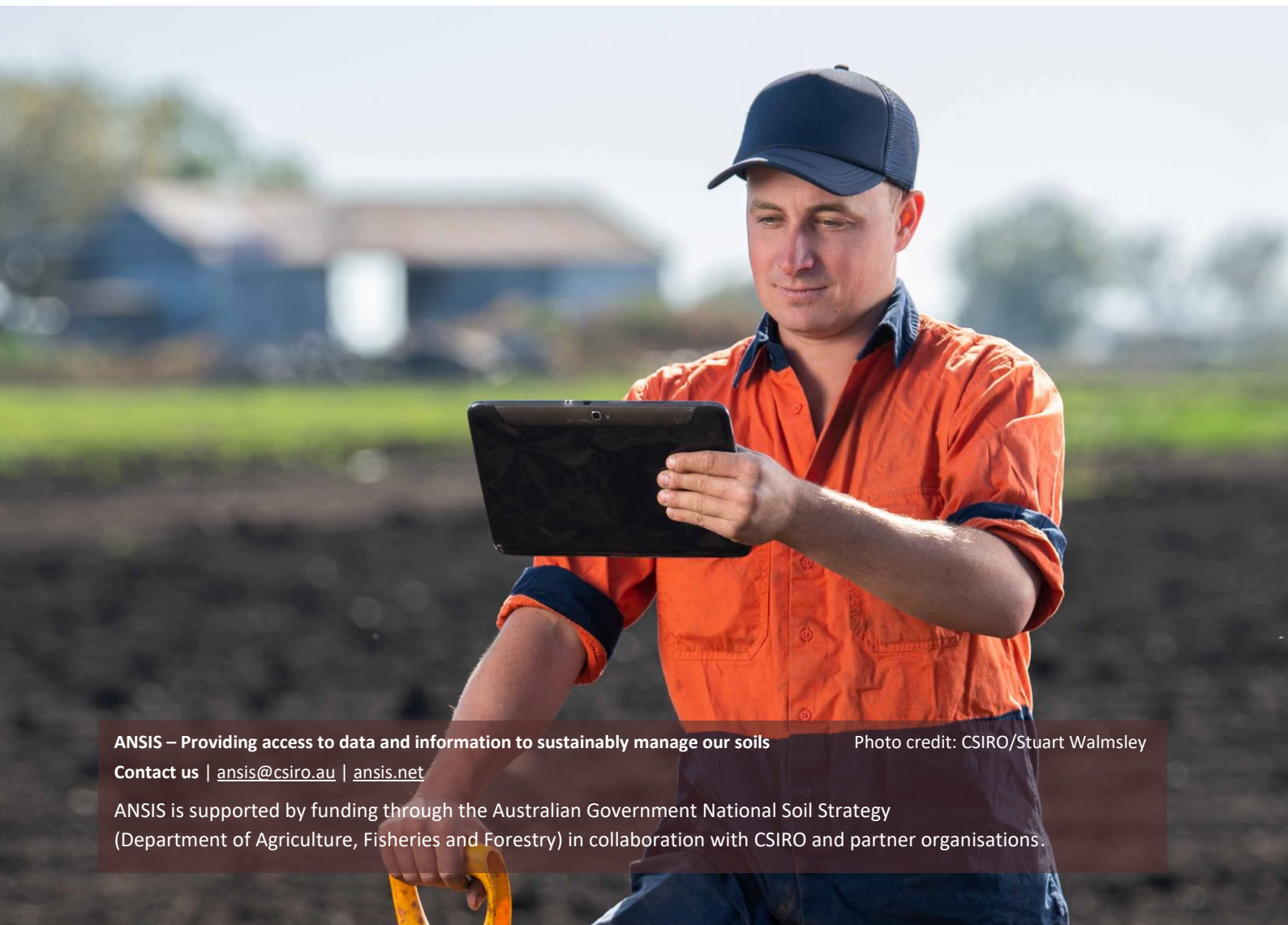


## ANIS use case: Soil data benchmarking tool

Use cases help to illustrate the potential benefits and value of the Australian National Soil Information System (ANIS). They show how soil data available through ANIS could support a range of users making decisions about the sustainable management of Australia's valued soil resources now and into the future.

### Soil data for the agricultural industry

The agricultural sector is one of the largest managers of Australia's soils. The state, trend and condition of a farm's soil directly influence the profitability and sustainability of the farming system, and the ability of the soil to support the ecosystem. ANIS provides access to soil data to enable the development of digital agriculture tools and applications to support decision-making for the agricultural industry.



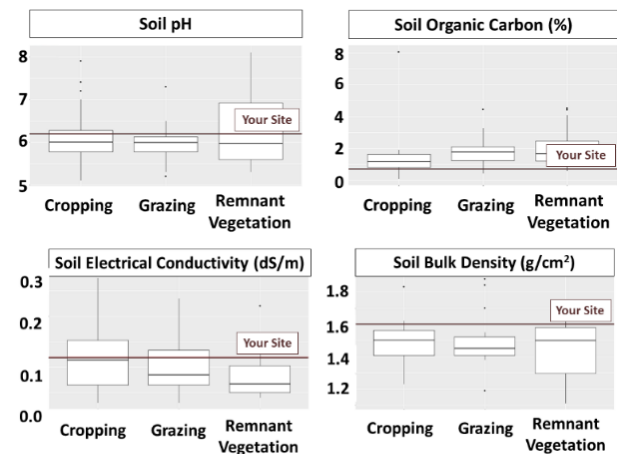
## How ANSIS could support farm level decision-making through benchmarking

Knowledge about how soil at a particular location compares to similar nearby soil, can provide insight into the impact of land use and management, as well as opportunities that may exist for improvement. ANSIS gives access to nationally consistent soil data from multiple sources, which could be used for benchmarking and lead to successful soil management.

In this use case, using georeferenced soil data from a farm, the prototype tool uses benchmarking analytics to return data from ANSIS for similar soils. The applied analytics ensure the sampled soil is compared to soils on a like-for-like basis, i.e., similar properties and landscape characteristics. It then compares the reference data to the user's farm site data and displays the results and the trend, if time series data are available. This informs whether the farm's soil is within the local range of 'natural' soil property values and compares the site to regional trends and similar land uses. This can help determine if management interventions are needed to enhance the soil condition.

## How the soil information product could be used

This tool aims to inform how the current state of the soil sample from a user's farm compares to other similar soils. In the future, this tool could be used to provide soil-specific sustainability credentials to identify if the soil asset on a farm is being maintained or improved. Such evidence-based credentials could support better access to capital, markets, supply chains, grants and other ecosystem service payments.



Example graphs showing how a soil sample from a user location compares to other similar soils for multiple soil attributes. The use case is an example of potential use only.

This is just one example of how ANSIS could provide access to consistent and trusted soil data and could support the development of soil information products at farm and regional levels. Other examples of tools that could be developed using soil data include improvements to soil mapping for precision agriculture and land valuations for farm investment.

## Supporting farm soil benchmarking: Hypothetical example narrative

A farmer discovered a global grain trader was seeking grain produced from farms that either maintained or improved soil condition for a \$10/t premium.

The farmer wants to ensure that the assessment of soil-condition is specific to their farm, and that their soils are not compared against a national benchmark, which may not appropriately represent their farm.

The farmer engages a consultant who uses a digital tool to benchmark soil condition. The tool uses data accessed via ANSIS from previously sampled local sites, to form a benchmark dataset.

To maintain certification, the farmer implements a soil monitoring program, which is used to continually monitor and benchmark changes in soil through time using the tool.

Using this and the knowledge of the farmer's management, the consultant certifies 60% of the farm for maintaining soil condition and designs a liming program on the remaining 40%.

The consultant uses the tool to find that the farm is maintaining similar soil carbon levels to nearby sampled soils. However, 40% of the farm is acidifying.