Central Region Soil Health Project

2019–2021 PAIRED SITES RESULTS

INVESTIGATING THE IMPACT DIFFERENT FARMING PRACTICES HAVE ON SOIL HEALTH

A MULTI-AGENCY PROJECT EXAMINING THE IMPACT OF FARMING SYSTEMS AIMED AT REDUCING COMPACTION, MINIMAL TILLAGE AND BREAKING THE SUGARCANE MONOCULTURE FOUND:

- 60% had increased water infiltration rate
- 70% had a reduction in soil compaction
- 70% showed increased soil calcium levels and higher pH readings, attributed to the regular use of lime by growers
- controlled traffic and lime application were the two practices that appeared to provide the most immediate soil health improvements at the project sites.

Soil health is complex and ever-changing.

These farming systems not only provide economic and environmental benefits for growers, they also help to safeguard the land's long-term productivity.

ADDITIONAL ANALYSIS COMPLETED FOR ONE SITE WHERE CHANGES OVER SEVERAL YEARS HAVE BEEN INTRODUCED TO REDUCE COMPACTION AND TILLAGE AND INCORPORATE LEGUME ROTATIONAL CROPS RESULTED IN:

- $7,758 per annum ($85/ha) improvement in farm profitability (annual benefit)
- a carbon footprint reduction equivalent to the removal of 12 cars from the road each year
- 70% reduction in the likelihood of toxicity-related water quality impacts.

Economic and environmental results were provided by the Department of Agriculture and Fisheries and Queensland University of Technology (2021).

KEY LEARNINGS FROM ADOPTING THESE FARMING SYSTEMS:

1. Microbial biomass were stable and showed an increasing trend.
2. In the long-term (15 years +) soil microbial activity and labile carbon content consistently increased.
3. The regular application of lime, mill mud and gypsum was evident in soil results throughout the project.
4. Soil root mass and length increased,on average, by 34%. This could be attributed to the reducing trend in compaction at these sites.
5. Positive flow-on effects could not only be captured in soil health indicators, but also in the reduction of greenhouse gases and the reduced amounts of nutrients and herbicides applied.
6. Natural soil textures such as hard-setting and dispersive soils, influenced a variety of results. If such soil textures were present, they did not necessarily indicate overall poor soil health.

MORE INFORMATION

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