



WILLINGA

Property Profile

Name: Ben, Jamie, Hellene & Carine McTaggart

Annual Rainfall: 330 mm

Soil Types: Clay/ Loam

Enterprises: Broadacre Cropping & Beef Cattle

Background

“Mt Samuel” is a family owned and operated farming business run by the McTaggart family within the shire of Mingeneu. Brothers, Ben and Jamie, farm alongside one another with their wives, Hellene, and Carine. Together, the family run a mixed enterprise operation consisting of cropping, (Wheat, Barley, Canola, Oats, and Field Pea’s), and Cattle.

The McTaggart family recently purchased a neighboring property named ‘Willinga’ and were interested in understanding more information about the soil on their new block.

Through Mingeneu – Irwin Group’s (MIG) participation in the National Landcare Program’s Smart Farm Small Grants Soil Extension project, the McTaggart’s were able to gain valuable baseline soil data for their new property and understand its strengths and constraints.

Soil samples

Through CSBPs NDVI system, MIG and the McTaggart’s identified six focus areas across two paddocks at Willinga, that were recognized as the high, medium and low production zones.

From there, the MIG team sampled each of the six locations, with multiple cores taken to a depth of 60 cm, at 0-10cm, 10-20 cm, 20-30 cm, and 30-60 cm increments. These were then compared to one another to identify the constraints that the soils held. Samples were taken in February 2023, and then again in January 2024 to determine the impact of production decisions across the 2023 season.

The soil samples were sent for a fully comprehensive analysis for the 0-10 cm increment, and a standard test to depth.

The main constraints

Ben expressed that the main areas of concern were sodicity and soil structure at depth, and salinity at depth. The McTaggart’s have previously tried to amend these constraints through techniques such as gypsum application, deep ripping, maintaining ground cover over winter, and removing sheep from the system.

Ben also expressed that the high clay content in the topsoil has created issues with unreliable crop emergence, this, as well as sodium, salinity, and boron at depth, are affecting root growth and the water capacity available to the plant.

In a bid to correct these concerns, the McTaggart’s applied Gypsum in 2023, and have deep ripped in the past.



Results from the samples

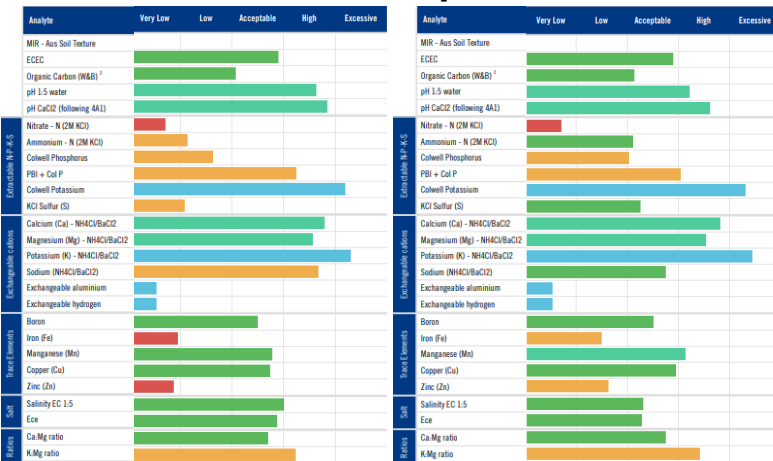


Figure 1 & 2: Results from Site 1 (0-10 cm), 2023 (left), compared 2024 (right)

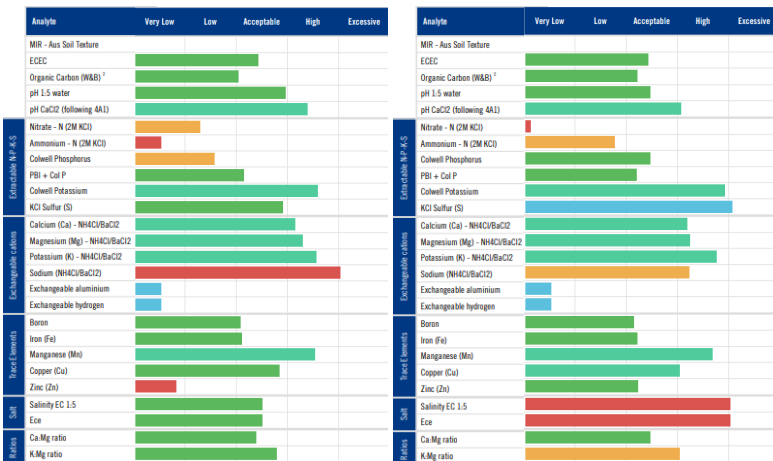


Figure 9 & 10: Results from Site 5 (0-10 cm), 2023 (left), compared 2024 (right)

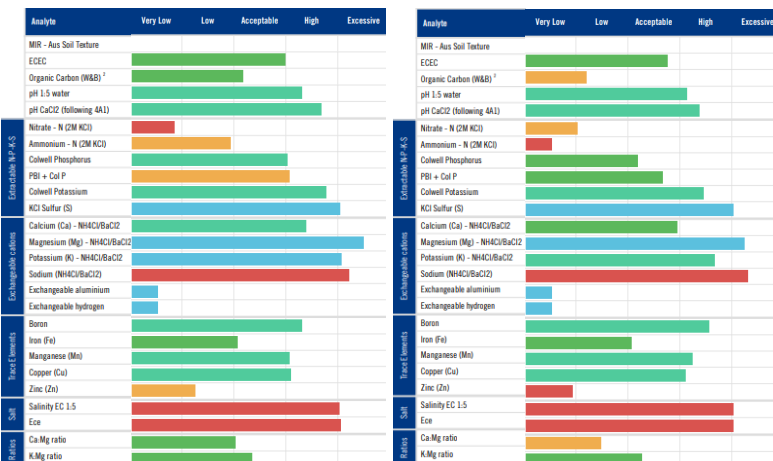


Figure 3 & 4: Results from Site 2 (0-10 cm), 2023 (left), compared 2024 (right)

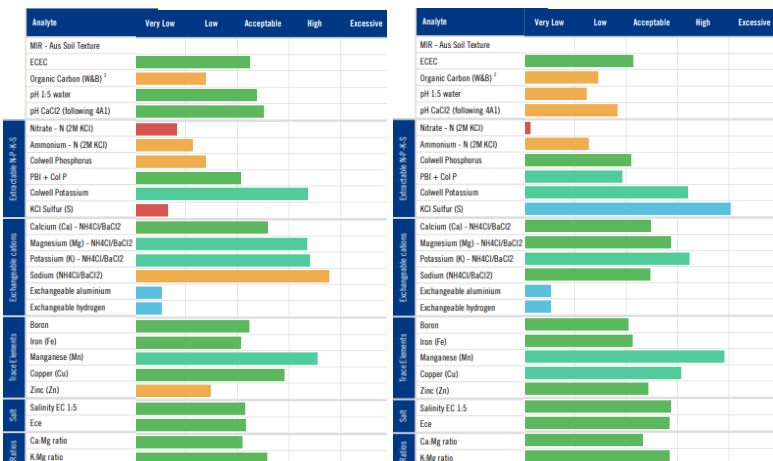


Figure 11 & 12: Results from Site 6 (0-10 cm), 2023 (left), compared 2024 (right)

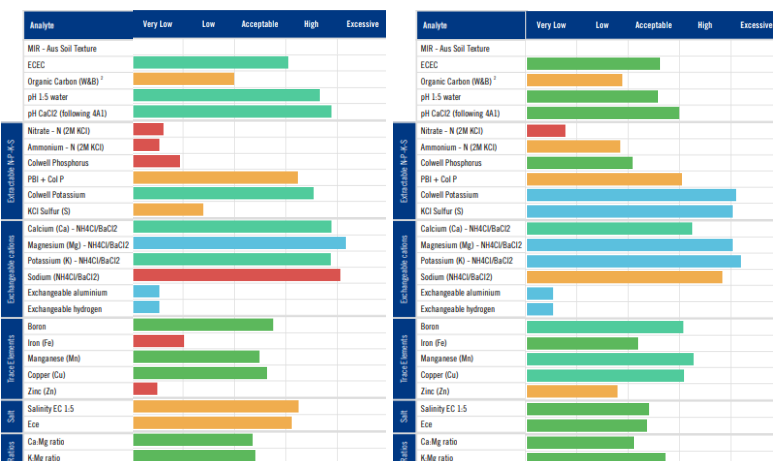


Figure 5 & 6: Results from Site 3 (0-10 cm), 2023 (left), compared 2024 (right)

The next chapter

Ben stated that the family's main goals for the soil at Willinga are to "maximise productivity and resilience".

Ben believes that based on the soil sample results, that the application of gypsum in 2023 has done what it was supposed to, by decreasing the exchangeable sodium, and increasing the exchangeable calcium.

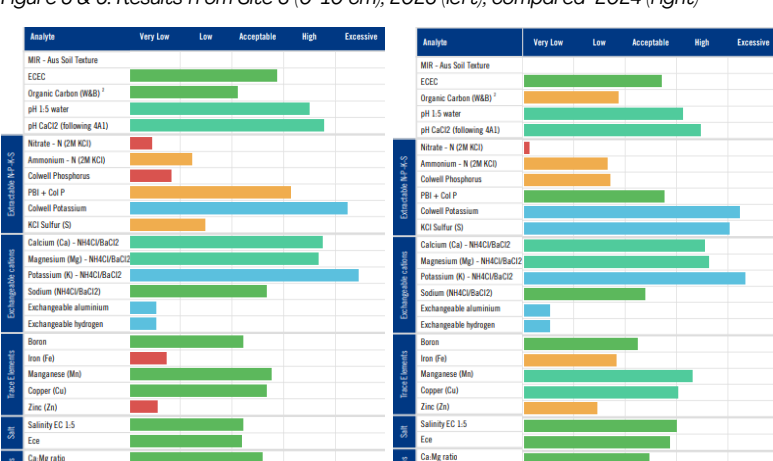


Figure 7 & 8: Results from Site 4 (0-10 cm), 2023 (left), compared 2024 (right)

When asked if he thought soil testing was important and if so, why, Ben replied: "Soil testing is important because otherwise you cannot be aware of the constraints, as well as the possibilities at depth."

Going forward, the McTaggart's plan to match crop types around soil constraints, particularly salinity, and continue to monitor the condition of their soils.