



## CASE STUDY

# MELARA



### Property Profile

**Name:** Darrin Lee & Steph Bligh-Lee

**Annual Rainfall:** 355 mm

**Soil Types:** Sand

**Enterprises:** Hay Production

### Background

Darrin and Steph farm on the outskirts of the coastal town of Dongara on their sandplain block, 'Melara'. They primarily grow oats for hay, occasionally incorporating vetch into their rotation.

After moving from a property with heavy red loam/clay soils in the Mingeneew region, Darrin and Steph were not sure what to expect farming on the coastal sands of Dongara.

Darrin and Steph participated in the National Landcare Program's Smart Farm Small Grants Soil Extension Project through the Mingeneew Irwin Group, where they hoped to further explore their property's soil potential and learn baseline data for their new coastal block.



### Soil samples

Through the CSBP NDVI system, the Mingeneew Irwin Group identified four focus areas throughout the main paddock at 'Melara'. These areas were the low and high points of production, for both the 2022 oat crop, and the 2022 oat and vetch mixed crop.

At each one of the four sites, multiple cores were 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.

Each site was tested using a full comprehensive soil test in the top 10 cm, and standard tests at depth, mainly exploring pH, Nitrogen, Phosphorus, Potassium, and Salinity.

When asked if they had learnt anything about their soils condition through this project Darrin and Steph responded, 'Yes, we established baselines, analysed results and are making adjustments from there. Knowing what we have means we can push the soil further to see its potential.'

In 2023, after the initial soil samples were taken, Darrin and Steph sowed their paddock to Kultarr oats. At sowing, they applied 80-100 kg/ha DAP to the soil. DAP consists of Nitrogen, Phosphorus and Sulphur.

## Results from the samples

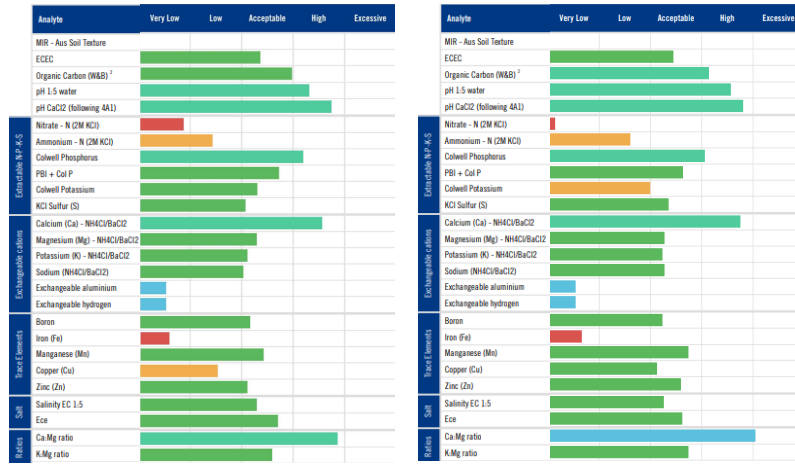


Figure 1 & 2: Results from Site 1, 2023 (left), compared 2024 (right)



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

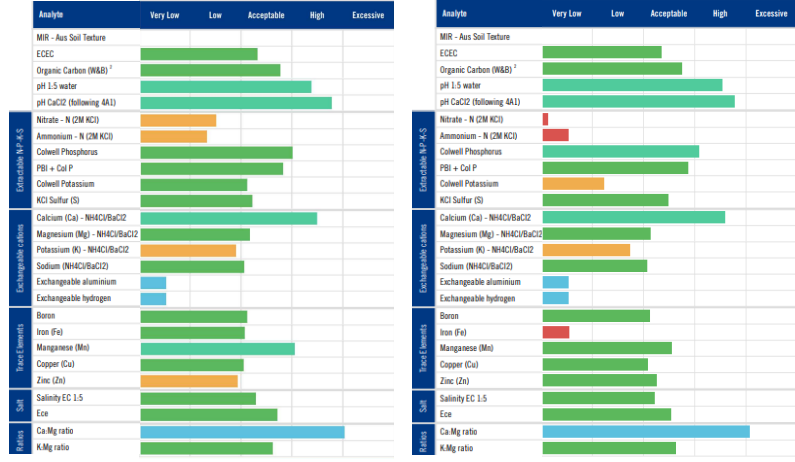


Figure 5 & 6: Results from Site 3, 2023 (left), compared 2024 (right)

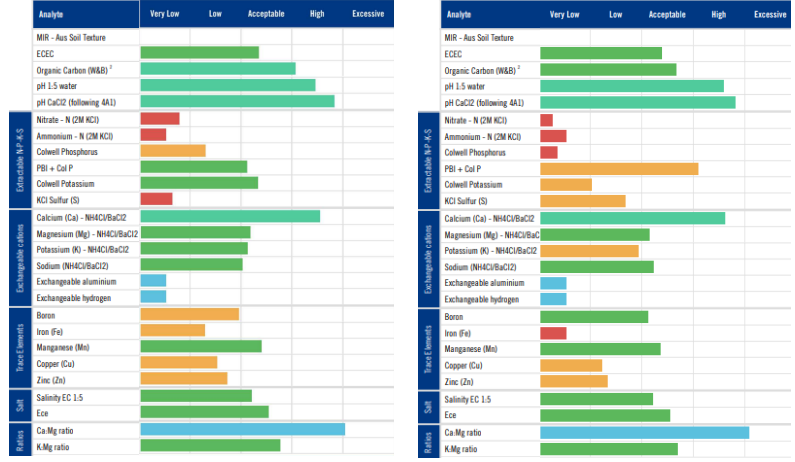


Figure 7 & 8: Results from Site 4, 2023 (left), compared 2024 (right)

## The main constraints

Darrin and Steph described their soils as ‘pretty fragile’ indicating that when there is minimal ground cover, the property is highly susceptible to wind erosion. Blowing topsoil over summer was recognised as one of their key areas of issue for production.

The main constraints found in Darrin and Steph’s soils were low nitrogen (at 4.2, 5.4, 7.4, 3.8 mg/kg Nitrate, and 1.4 mg/kg Ammonia) and Iron in the top 10 cm. Nitrogen remained an area of concern at depth, which gradually declined with the depth. In 2024, the nitrogen had drastically decreased.

## The next chapter

Darrin and Steph both agreed that their next step would be to address the water repellence and potential wind erosion issues within their paddocks, and to build up the organic matter and carbon of the soil, ensuring the soil has some substance and is well balanced.

By participating in this project, Darrin and Steph were able to establish baseline data for their new property, which they have analysed and will continue to use as a reference, adjusting their soil management as needed.

In the future, Darrin and Steph wish to undertake more soil testing to determine exactly how hydrophobic their soils are, as well as researching and understanding what microorganisms are present within the soil. They are both excited to see the ongoing potential of their property and how it will improve over time under their management!

