

Spring amelioration to fill the autumn feed gap

NATIONAL LANDCARE PROGRAM SMART FARMS SMALL GRANTS - AN AUSTRALIAN GOVERNMENT INITIATIVE

BACKGROUND

A 34-hectare paddock at Western Flat was mapped in 2019 for conductivity and elevation and grid mapped for pH, which allowed distinct management zones to be defined.

TREATMENTS

The whole paddock was identified as being acidic in the range 4.8 to 5.5 (CaCl), with an average pH of 5.1. Lime was applied in 2019 at rates of 2 to 3 t/ha. The paddock was re-tested in 2022, showing the pH had raised to an average 5.8 (range 5.3 to 6.0).

Areas of low conductivity and high elevation were clay spread in 2022 at rates of 500 to 600 t/ha to treat water repellence and increase the soil water holding capacity.

Conversely, areas of high conductivity and low elevation were delved, given the shallower depth to clay in those areas.

The applied or delved clay was incorporated into the top 20 cm using a TARIM OZ chisel plough (Image 1) during September 2022, then cultivated and rolled to level. A mixed species summer active fodder crop was sown on 30 October.



Image 1. A 3.15m wide TARIM OZ 9 leg Hydropneumatic Subsoiler with spiked packer rollers was used to incorporate clay.

RESULTS

The clay at this site is severely sodic and dispersion led to furrow infill after sowing (Image 2). The first crop failed and was re-sown on 12 December 2022. Assessment of dry matter in February 2023 showed yields up to 2.6 t/ha, providing valuable summer/autumn feed (Fig. 1).



Image 2. Heavy rainfall after sowing led to severe dispersion and poor crop establishment.



Image 3. The crop of leafmore brassica, shirorie millet, tillage radish and sunflowers in February 2023.

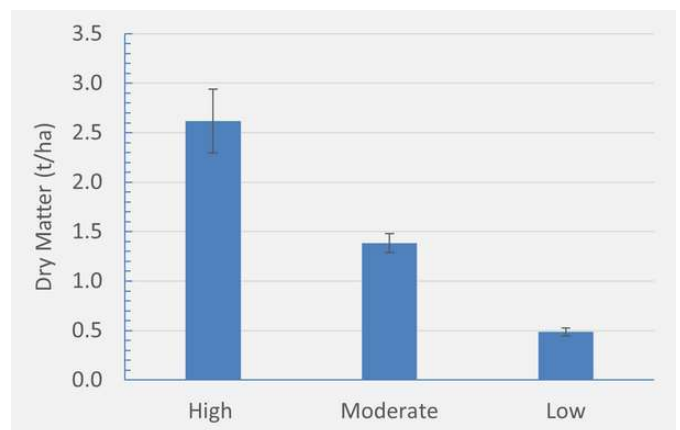


Figure 1. Fodder dry matter ranged from 0.5 to >2.6 t/ha on 24 February 2023 in areas of high, moderate and low growth.