Healthy Plants – Healthy People

BRACEWELL PASTURE TRIAL 2022-23

With SOIL BIO-BOOSTER

By Trevor Galletly[i] Peter Van Beek[1], Version 3 – Jan 2025

Summary

Bio-Booster was applied to a section of native pastures and cattle have not been grazed to date. One treated area has shown increased growth and leaf Brix readings. Additionally, seeded chicory is showing larger plants and flowers. A second trial on a neighbouring property has now been mulched with the grazier reporting significantly more dry matter present.

Background

This on-going demonstration aims to show the effects of stimulating soil biology in grazing land. An indication of potential results is shown in *Case study -- From 30 steers in 2000 to 90 in 2020 with soils and pasture still improving*.

The Bio-Booster is a living brew containing a wide range of local soil biology. Liquid Sea Minerals and humic acid were also applied to support the soil biology. The aim is to speed-up building soil carbon the way nature does it. This method is low cost and can be home-brewed in 5 days and has been tested in soybeans and macadamias with very promising results.

Following a workshop in November 2021, participants then built application equipment, started a worm farm, prepared a Starter and Brew and then applied the treatment on 18 February 2022. A microscopic quality check was undertaken and pasture measuring posts installed at application.

Treatments

Bio-Booster @ 100 L/ha along with Liquid Sea Minerals 5L/ha and Humic acid 15 L/ha was applied. Robbie Pocock treated part of a 2.5 Ha paddock, and Peter Brady treated a section in a paddock. The treatment was applied behind a ripper. Control areas were also ripped.

Pocock also included seeding a number of pasture species to increase diversity in soil biology and stock-feed. Chicory (*Cichorium intybus*) was sown in both treated and untreated areas.

Stock have been excluded from the paddocks to allow new species to mature and seed.

Observations

7 June 2022. Robbie and Glynis Pocock's assessment was that grass near ground level was denser in the treated area compared to the control area.

29 June 2022, 140 days after planting. Trevor Galletly, Peter Brady and Robbie Pocock conducted a visual inspection and did leaf refractometer readings of Siratro in the treated and untreated areas

Chicory had emerged in treated and control areas. Few of the other sown species had emerged.

At application, the pasture was native species at 5 – 20 cm height. As native grass species vary across the paddock, detailed assessments were by species.

Black spear grass	Control	50 cm	
	Treated	60 cm	+10 cm
Native blue grass	Control	10 cm	
	Treated	15 cm	+5 cm
Siratro over Black spear grass	Control	55 cm	
	Treated	65 cm	+10 cm
Leaf refractometer reading on Siratro	Control	12	
	Treated	14	+2 Brix

(Leaf refractometer readings indicate the relative level of plant sugars in the leaf and are a good indicator of the plant's health and nutritional value. What is poor, average, good or excellent varies between species, but a higher reading is better than a lower one).

Chicory plants in the treated area were generally broader leaved and taller.

One effect of excluding cattle from both treated and control areas was an increase of desirable pasture species favoured by cattle. Continuous grazing gradually leads to the loss of these species.

February 2023

Pocock's showing chicory plants Photo 1 & 2 and measuring posts Photo 3 & 4.

Photo 1

Photo 2

Photo 3

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Photo 5
Mulching at Brady's giving at least 20% more mulch.

Photo 4

Comments

The three inspections showed that treated areas have more growth than control areas.

Tables for Approximate Relationships between pasture height and Kilograms of Dry Matter /Ha (kgDM/Ha) indicate that a 10 cm height increase can add 3,000 kg of DM/Ha.[1]

To put this into perspective, an average 600Kg cow can require 18 kg Dry Matter per day to thrive and produce milk. Assuming 50% is trampled or spoiled, the extra Dry Matter eaten is 1,500 kg and represents 83 grazing days or $2^{1/2}$ months per hectare for a fully grown animal or 5 months for a heifer. The trampled part and larger root system will feed the soil-biology thus increasing future carbon in the soil with all its benefits.

This treatment can be applied to additional paddocks as planned, which will allow for a slow build-up of stock numbers which is a major cost.

Indicative cost of the treatment.
Cost of a 1,000L Bio-Booster, enough for 10ha: Bio-Booster $60 - $80, or $6 - $8/ha, 3L of Sea Minerals and 3L Humic acid $18/ha. Total cost is $26/ha plus tractor cost. Application equipment will generally be available on farm.

Conclusion

The use of Bio-Booster has increased soil biological activity and given increased growth of pasture by improving the soil and increasing carbon levels.
The benefits are very promising and the costs are minimal.
These results are consistent with findings in other crops.

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[2]) https://mbfp.mla.com.au/pasture-growth/tool-27-field-based-pasture-measurements/