



CORSA KALE

COMPARING DRY MATTER YIELD OUTCOMES USING SUPERZYME

Biological organism use is common practice in other industries and in other parts of the world, however they have not been explored here in New Zealand on fodder crops to increase the dry matter yield whilst alleviating soil borne pathogens. This trial was designed to gauge their potential.

BACKGROUND

Kale is normally used as a winter feed crop, with a deep root system; sown in November and December.

Kale generally has good drought tolerance and tolerates most insect pests also. Kale is often used as a second brassica crop because it is not so susceptible to Club Root and Dry Rot particularly following crops like swede.

Maximum yield is reached between 150-220 days on the giant cultivars, and with a potential yield expectancy around 17 Tonne DM/ Ha.



TRIAL DESIGN

Keeley Farms selected ground. 48 Ha was utilised as a Control block. 10 Ha was utilised for Superzyme™, which contains beneficial bacteria and fungi (*Trichoderma koningii*, *Trichoderma harzianum*, *Bacillus subtilis* and *Pseudomonas putida*) supplied by Roots, Shoots & Fruits Ltd. Superzyme™ was mixed dry with grain into drill and applied to 10 hectares.

All plots were planted with insecticide treated Corsa Kale @ 4.5kg / Ha. Drill date was 7th December 2021.

Blocks	Seed Treatment	Product Rate	Total Product Used	Seed Rate Corsa Kale
Control – 48 Ha	Insecticide treated ONLY.	Nil	Nil	4.5kg / Ha
T1 - Superzyme Biological Treated 10 Ha	Dry product mixed with seed in drill	200g/ Ha	2kg	4.5kg/ Ha

RESULTS

On 5th January 2022, a plant population count was undertaken by Holly Mallinson on six square metre plots from both blocks.

On 25th May 2022, six by one square metre plots were cut on a grid basis and wet samples weighed for each block by Canterbury Feed assessment.

Table 1 - Plant Counts

	AVERAGE PLANTS /SQ.
Control	70.5
T1- Superzyme	82

Table 2 - Plants/sq range

	PLANTS/SQ. RANGE
Control	29
T1- Superzyme	15



Dry Matter yield assessment for this grazing-based property was taken on the 25th of May 2022 and samples for each block sent to CFA laboratories.

TOTAL DRY MATTER PER HECTARE ASSESSMENT

Table 3 - Wet weight per/Ha

	TOTAL Wet Weight Ha
Control	87,083 kg
T1-Superzyme	91,250 kg

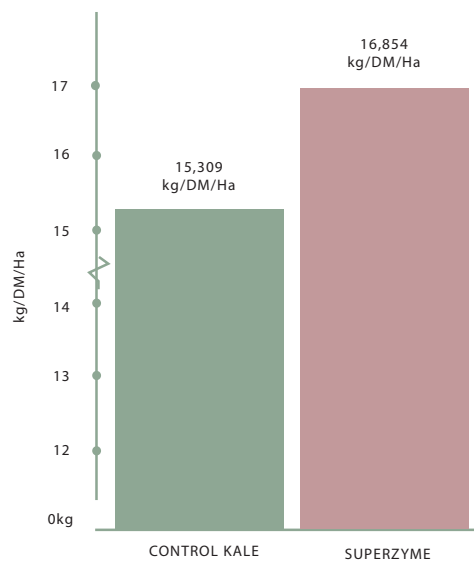
Table 4 - Dry Matter Assessment

Control	15,309 kg DM / Ha	17.58% DM
T1-Superzyme	16,854 kg DM / Ha	18.47% DM

Superzyme showed an increase in Kg/Ha over the control by **10.9%**

EFFECT OF BIOLOGICALS ON DRY MATTER OF CORSA KALE

TOTAL DRY MATTER (PER HA)



CONCLUSION

Based on Beef and Lamb New Zealand supplementary feed guide 2020, kale costs 31 cents a kgDM to purchase as supplementary feed.

Control produced 15,309 kg DM/Ha or \$4,745.79

Superzyme treated 16,853 kg DM/Ha or \$5,224.43

Superzyme treatment equating to an added value of supplementary feed of \$478.54 per hectare over the control.

Superzyme was applied at 200 grams per hectare at a cost of \$36.80/ Ha.

Therefore, the **profit benefit per hectare was \$441.74** based on the cost projection of Kale three years ago, which we can assume has increased. **This paddock on Keeley Farms was a total of 58Ha with a potential increased profitability of \$25,620.92.**

This is a second year trial on this Keeley Farm block and although the increase of yield this year from Superzyme addition was much lower than the first year where Superzyme was added, compared to the control block, there is still significant profit .

The added advantages over the profitability aspect of Superzyme is the increased microbial populations. In addition to increasing the fertility of the soil, the healthy microbial populations play an essential role in nutrient cycles that are fundamentally important to life on the planet, restoration of soils and our sustainability.

[Click here](#) to read the full trial paper.

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