



# CORSA KALE

## COMPARING DRY MATTER YIELD OUTCOMES USING BIOLOGICAL TREATMENTS

By Catalyst Performance Agronomy  
Keeley Farms and Canterbury Feed Assessment

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. 30 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.

Competitor Trichoderma product treated on the seed to 10 hectares.

All plots were planted with insecticide treated Corsa Kale @ 4.5kg / Ha. Drill date was 18th November 2020.

Blocks	Seed Treatment	Product Rate	Total Product Used	Seed Rate Corsa Kale
Control - 30 Ha (Sth end of paddock) Test ID -199538	Insecticide treated ONLY.	Nil	Nil	4.5kg / Ha
T1 - Superzyme Biological Treated 10 Ha (North) Test ID -199536	Dry product mixed with seed in drill	200g/ Ha	2kg	4.5kg/ Ha
T2 - Competitor Trichoderma Treated 10Ha (Middle) Test ID - 198526	Product treated on the seed	5g/ Kg seed	225 grams	4.5kg / Ha



## RESULTS

On 6th January 2021, a plant population count was undertaken by Charlotte Webb (student from Lincoln University) on six square metre plots from each block.

On 26th May 2021, six by one square metre plots were cut on a grid basis and wet samples weighted for each block.

Wet and dry matter analysis were conducted by Canterbury Feed Assessments.

Table 1 - Plant Counts

	AVERAGE PLANTS /SQ.
Control	65.8
T2- Competitor Trichoderma	72.5
T1- Superzyme	72.7

Dry Matter yield assessment for this grazing-based property was taken on the 26th of May 2021 and samples for each block sent to CFA laboratories.

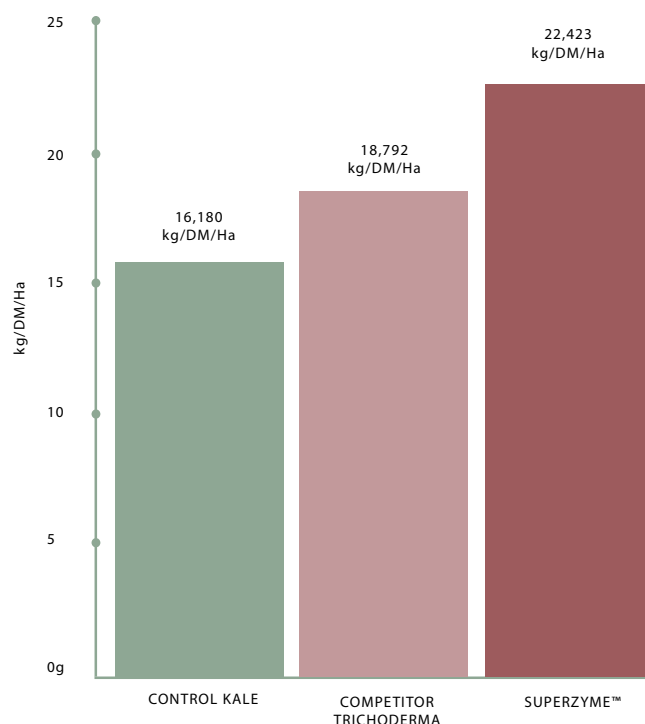
## TOTAL DRY MATTER PER HECTARE ASSESSMENT

Table 2 - Dry Matter Assessment

Control	16,180 kg DM / Ha	14.34% DM
T2- Competitor Trichoderma	18,792 kg DM / Ha	16.20% DM
T1-Superzyme	22,423 kg DM / Ha	17.85% DM

### 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, kale at 16% DM costs 31 cents a kg to purchase as supplementary feed.

Dry matter difference between Control and T1 – Superzyme™ treated is 6,243 kg per hectare equating to **an added value of supplementary feed of \$1,935.33 per hectare over the control.**

Superzyme was applied at 200 grams per hectare at a cost of \$35.85, which provided the grower an **additional \$1,899.48 per hectare of supplementary feed.** Superzyme plots however reached a **higher average dry matter of 17.85 %** than the 16% that these cost projections are based on, so the actual benefit to the Keeley Farms is even more.

Further to the increased biological fertility of soil achieved, the promotion of 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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